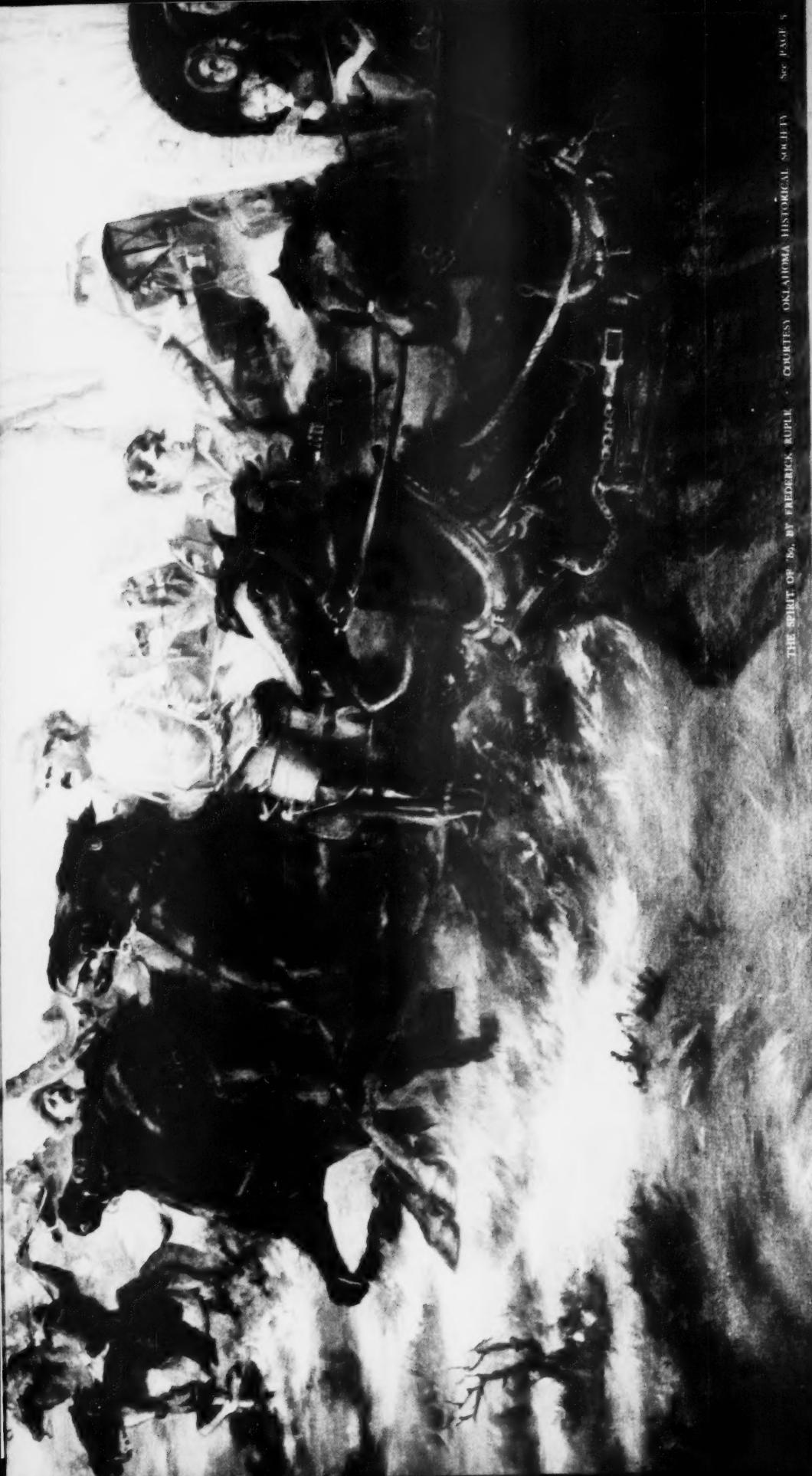


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See PAGE 5

THE SPIRIT OF '45, BY FREDERICK RUPKE. COURTESY OKLAHOMA HISTORICAL SOCIETY

DUNN'S REVIEW

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Contents

JANUARY, 1949

BASING POINTS The effects, direct or indirect, of basing-point practises have aroused the interest of a large part of American business. The subject is given particular timeliness because of recent Supreme Court decisions.

A detailed study which examined all phases of this controversial issue, was reported by Edwin B. George, DUN & BRADSTREET Economist, in a series of three articles, concluding in the November DUN'S REVIEW. Due to the heavy demand for this study by business men and the need for this material in convenient reference form, the articles have been reprinted in a 24-page pamphlet. "The Law and Economics of Basing Points." This is available on request, without charge.

Samples of official and private views of the basing-point decisions are presented, the major charges brought against the system are listed on economic grounds, and the pros and cons of these charges discussed. Inquiring into the reasons for the prevalence of delivered prices, freight absorption, phantom freight, and so on, Mr. George tries to visualize the consequences of revision.

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DUN'S REVIEW (Including *Dun's International Review* and *The World's Markets*). January 1949. Published monthly. 290 Broadway, New York 8, N. Y. Bkckman 3-7550. Subscription information on page 57. Copyright 1949 by DUN & BRADSTREET, INC. Copyrighted under International Copyright Convention. All rights reserved under Pan American Copyright Convention. Frontispiece, wind-blown snow, photograph from Devaney.

THE SPIRIT OF '89

*B*OUT 60 years ago, at noon on a Spring day in April, fifty thousand people toed a line across the vast plains of Oklahoma awaiting a signal. A signal which would give them land by the simple process of "getting there" first.

Wild-eyed horses reared and pawed the air, neighed nervously, and strained at the reins as riders and drivers fought for positions of advantage in the line. Praying men and men who cursed, homesteaders and adventurers, women and children lined up, side by side, to race and stake a section of this Indian Territory as their share in the newly opened land.

At the signal the race was on. The mad rush meant many different things to many different people. A home, a farm, a fine lot, or a choice strip. Independence, a stake in the

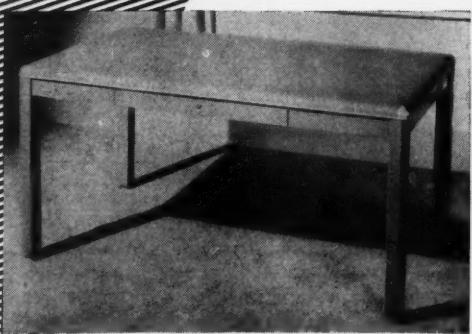
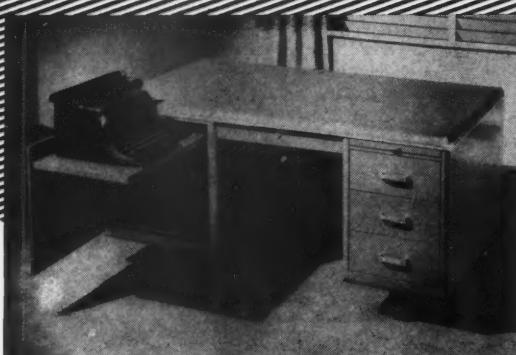
future, a part in the development of the West, something that sons and daughters would hold and cherish down through the years.

Like most competitive ventures, there was the bitter disappointment of the losers contrasting with the joy of the winners. Many failed to stake a claim that day—but many others did and before the dust of the scramble had settled with the setting sun towns were already being planned and in the making.

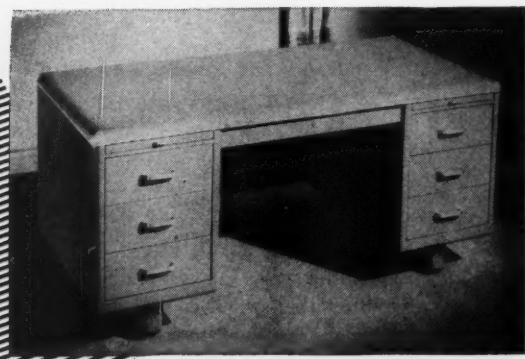
To own a piece of land, which each can call his own, has been the ambition of free men down through the centuries. Wars have been fought for land, millions have died for it—yet sadly enough the pattern does not change with time—more millions will fight for it, only at last to be buried in it.

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LOOKING TOWARD THE FINANCIAL DISTRICT, NEW YORK CITY—DEVANEY PHOTOGRAPH

The Relativity of Net Profits

ROY A. FOULKE

Vice-President, DUN & BRADSTREET, INC.

LIKE most concepts that are widely and freely used, "corporate net profits" leaves room for serious speculation. If we are to understand the deep significance of this term to management, to labor, to our still relatively free society, and to competition for the investment of funds, we must ascertain in all its underlying significance what corporate net profits means in the mechanics of numbers. From that point we may then take other steps.

Each culture has had its own philosophy, religion, music, architecture, economics, and mathematics. The Classical culture had its plane surface geometry, the Arabian culture created a science out of the letter notations of algebra, while our Western culture

*C*ORPORATE PROFITS ARE IMPORTANT IN DETERMINING MANAGEMENT POLICY . . . RETAINED EARNINGS . . . TAXATION . . . PLANT EXPANSION . . . DIVIDEND PAYMENTS. MORE ABOUT HOW PROFITS ARE MEASURED AND ON WHAT THEY ARE BASED WILL APPEAR IN FEBRUARY.

evolved the dynamics of calculus which has led to ever more and more abstraction of variable quantities. "It is," wrote Spengler with sweeping penetration in his *The Decline of the West*, "by means of names and numbers that

the human understanding obtains power over the world."

There has been no period in the history of the world when mathematics has represented the concepts of all action and thinking, practical and metaphysical, as it does to-day. The never-ending advances in science, the discovery of the innermost secrets of nature, the spread in the use of the corporate form of business organization, the operations of businesses in their tremendous diversity, all are founded on advances in applied mathematics.

The layman peruses the daily press and notices that a particular corporation earned net profits of \$5,642,000, during its last fiscal year, or \$2.18 per share for each share of outstanding

common stock. These figures are definite, positive, unequivocal; they appear in the exacting units of mathematics.

When one studies the detailed profit and loss statement contained in the annual report to the stockholders and finds the same identical figure at the end of a long column of expense items, he sees with what absolute definiteness the profit figure is determined.

Exactness an Illusion

The relativities of values expressed in conventional balance sheets and conventional profit and loss statements are rarely realized by the layman who assumes that these Arabic digits with a monetary prefix are definite and absolute. This illusion of absoluteness has been due to the failure of applied mathematics to take fluctuating dollar values into consideration and has been encouraged by the very appearance of balance sheets and profit and loss statements distributed by the millions each year to stockholders and creditors, financial statements in which all items, until very recently, have been carried out to two decimal places, giving an appearance of great exactness.

"It has been asserted . . . that an ideal condition for the practise of accountancy would be one under which the economic value of any asset was easily ascertainable, at any time . . ." Under these "ideal conditions" every asset would be carried in the balance sheet at its actual current economic value.

Kenneth McNeal in *Truth in Accounting*, one of the few studies of accounting assumptions, theories, and practises, which has appeared in recent years, has carefully described what the "economic value" is:

"The economic value of anything is its 'power of exchange' which measured in money, is its market price. The market price of a thing is the price at which it is actually being bought and sold. Economic value is not necessarily the price at which a thing could be sold nor is it necessarily the price at which a thing could be bought. Economic value is not a prophecy. It is a fact."

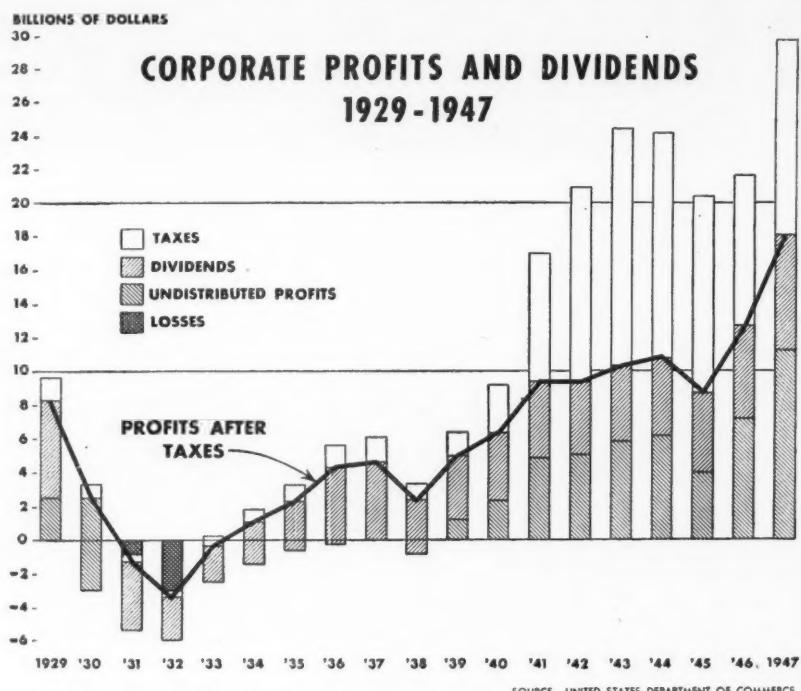
From this description, it is clear that "economic value" is a constantly changing dollar concept, and during periods of inflation and deflation this value

changes rapidly, very rapidly. The fact that many assets are not so valued in actual accounting practises, that is, they are not carried in the books of account, or in the published financial reports of a corporation at their current economic value, is one of the basic reasons for the development of the science of analyzing financial statements by business men, bankers, investors, stockholders, management engineers, and creditors. The first assumption for accountancy, as practised to-day, to be an exact economic science as well as an exact mathematical science is stable prices and stable prices do not exist.

The figures which comprise conventional balance sheets and conventional profit and loss statements are qualified as to their absolute exactness by a "bewildering mixture" of three premises.

Among those items in financial statements whose values are measured in Arabic digits and are based on recorded facts, except in the case of re-appraisals, are the cost values of land, buildings, machinery, equipment, tools, furniture, and fixtures. The dollar amount at which each of these specific items is carried on the books of a business enterprise is based upon purchase and sales contracts, upon transactions which have actually taken place and which have been carefully recorded in the exact dollar-and-cent measures of specific transactions at specific dates.

Occasionally, after a particular item of fixed assets has been recorded at cost, that item is "re-appraised" and carried at some arbitrary dollar figure which is higher or lower than the recorded cost, or higher or lower than the bal-



Before a Congressional group studying profits Professor Sumner H. Slichter, Harvard University, stated on December 6, 1948, that accounting profits have been overstated, they do not reflect the amount available for dividends, and that money for plant expansion must come largely from retained earnings.

The reasons why these figures do not take fluctuating dollar values into consideration is because they are based upon a "combination of recorded facts"; they are valued in accordance with "accounting conventions"; and their size is actually determined by "personal judgments." Let us see in specific terms how these three premises apply.

ance of recorded cost plus improvements and less depreciation.

A wave of re-appraisal write-ups occurred during the 1920's when price levels had materially increased, and a wave of write-downs during the 1930's when values had materially dropped. From the accounting experience of those years, it would seem as though



BORING CONNECTING ROD BEARINGS, AMERICAN BRAKE SHOE COMPANY—CORNELIUS PHOTOGRAPH

As tools and other physical assets of an industry are used up in the production of wealth, adequate replacement should be earned. By taking depreciation on the basis of replacement costs, economic values would at all times be taken into consideration.

"re-appraisals" were hardly the answer of applied mathematics to this basic problem of synthesizing values which fluctuate up or down from recorded facts.

If, by any chance, the dollar cost value of land as carried on the books and in the balance sheet of a corporation were approximately identical with its economic value on the balance sheet date, the fact would be sheer coincidence. This practise of carrying land at original cost as a recorded fact, in the books of account and in successive balance sheets, no matter how greatly its dollar value has changed since the purchase date, is one of the underlying premises of accountancy as practised to-day.

Other items similarly based on recorded facts are cash on hand, cash in bank, the face value of notes receivable, accounts receivable, amount of notes payable, accounts payable, interest payable, the volume of gross sales, returns of merchandise, rent, wages, and salaries.

This practise by which assets are carried on the books of account, and in

balance sheets at digits which are different from their actual economic values at any particular date after purchase, is the result of what is known as an "accounting convention" and represents one of the present-day mathematical limitations to existing accountancy. Accountancy, as practised, has not reached the point in its development where variables, that is, fluctuating economic values of assets, are taken into consideration except in the case of inventories.

In small business enterprises the valuation of assets based on accounting conventions is of relatively little significance. As businesses grow in size and invest substantial sums in plants, machines, warehouses, wholesale establishments, or retail stores, accounting conventions grow in importance.

The determination of what portions of the values of each accounting period are to be charged to depreciation becomes a very fundamental problem. According to our existing accounting principles, it is based on "conventions," with recorded facts in the form of original cost as the basis of accounting.

Even though the intention of operating managements and of accountants are of the very best, the human quality of judgment also plays an unconscious part in the determination of what proportion of each item of fixed assets, except land, is used up in each accounting period and charged to expense. Very different conclusions are reached by perfectly honest and capable individuals on the same basis of physical facts.

When it comes to depreciation on items of fixed assets, judgment enters into two necessary decisions; first, the rates of depreciation, and second, the method of depreciation to be used. The rate of depreciation, which is based on the life expectancy is itself a generality. A toggle press might wear out within three years in one plant and remain in use for twenty years in another.

How Depreciation Varies

The method of depreciation selected will give different mathematical values to assets over the years and different charges to the profit and loss statement, even though the same life expectancy is used. These methods might vary from straight-line depreciation commonly employed by industrial concerns, to the sinking fund method, the fixed percentage of diminishing value method, or depreciation based upon output or the number of hours the machine is in operation.

How are rising prices of capital equipment treated by the assumptions of accountancy? One machine shop, for example, might have among its equipment three milling machines of the same size and design. One purchased each year for the past three years at a different but steadily increasing price. Each machine is identical with the other two. The cost of the machines becomes an asset on the books as a recorded fact.

The cost is not an expense in determining profit, only the depreciation on each machine over the estimated life of the machine. But the depreciation on each machine for each year becomes a larger mathematical amount as the purchase price of each machine increases. A comparable business which purchased

(Continued on page 46)



SKYLINE OF LOWER MANHATTAN ISLAND—CUSHING M

The Business of MINDING OTHER PEOPLE'S BUSINESS

PAUL SWARTZ

Management Engineer

THE life of a business consultant does not provide the risks and thrills encountered by a mariner, but it is full of curious happenings and there are few dull moments.

The outstanding results accomplished by pioneers in the field of time and motion study, the understandable opposition of union leaders to the speed-up and the frequently foolish antics of the efficiency experts are so contradictory that a clear understanding of the field of work and usefulness of the consulting management engineer is seldom attained.

I am presenting some meditations, based on a lifetime of consulting work, in the hope that collectively they will fairly portray the often maligned profession of management engineering.

In the office of the general manager a slender, serious young man with a brief case under his arm, arose, held out his hand, and said "Good-bye." The general manager watched him dreamily—almost without seeing him—as he walked out. After a moment he opened the neatly bound, several hundred page volume entitled "Analyses and Recommendations" which the departing visitor had given to him.

Presently, he lifted the telephone and asked for Henry Simpson, the senior partner of a management engineering firm, saying: "Mr. Simpson, your bright young assistant has just presented me with a formidable treatise which he assures me contains good counsel on how to run this plant. Maybe so, but I engaged your firm to

tell me whether to continue my gray iron foundry or to buy castings, and what to do to improve my sales. I do not intend to read an essay on management. I want specific advice, and that from some one who knows what it is all about."

It was obvious to Henry Simpson that he had an angry client. So, Henry Simpson came in person and reviewed the situation, including the lengthy report. A few days later he recommended, with few but sufficient words and figures, that the foundry be sold and that certain changes be made in territories, policies, and sales compensations, plus a new sales manager.

The general manager was satisfied. He said at the close of the final session, "You have crystallized our thoughts

into action as we might never have done without your help. Thanks a lot, Henry, but next time we ask you to come, please leave your cubs at home."

Thinking about my experience with Henry Simpson when I was a general manager, I am minded to make a little survey of our own business—to sort of turn the business doctor loose on an investigation of business doctors. Just what is a management engineer and what should he do?

He is called by many names—consulting engineer, industrial engineer, management engineer and efficiency expert—the last being a bit pole-catish. Some titles indicate specialized fields such as cost accountant, sales analyst, labor relations counselor, systematizer. There does not appear to be any generally accepted title for those of us who earn our living minding other people's business. Probably at this time the term consulting management engineer

has the highest standing it has ever had.

Is management engineering a profession? First let us define, if we can, just what we mean when we say profession. The dictionary says it is "Any calling or occupation involving special mental and other attainments or special discipline" or "An occupation that properly involves a liberal education or its equivalent, and mental rather than manual labor." This leads to the conclusion that a profession is an offering of personal skill—not an occupation in which commodities and human labor are bought and sold for profit. It is difficult to see how a corporation can practise a profession, although many competent management engineering firms are incorporated. As long as there are organizations which employ high pressure salesmen to secure clients and send out low cost subordinates of questionable capacity as field engineers, the answer to the question "Is management engineering a profession?" must

be that it is not altogether so to-day. Whether or not it should be strictly professional is another question.

No Laws, No License, No Society

There are no laws governing the practise of management engineering. No license is required. Any one can hang out his shingle. There is no society in which membership gives prestige or certification of ability to the individual consultant. There is an Association of Consulting Management Engineers, but its membership is that of firms only, and is limited to a few of the larger organizations.

In the absence of any statistics, only a surmise can be made as to the extent to which management engineering is practised. In the United States and Canada about a score of well-known firms and hundreds of small partnerships and independent individuals do professional management work. One large firm is believed to have a gross income from clients amounting to more than a million dollars a year. There may be others which take in even more than that. A fair guess as to the total of revenue of all management engineers would lie between ten and fifteen million dollars a year. The profession has a business side of some magnitude.

The consultant has three basic advantages over the officer and employee. He brings a view-point attained by experience with many enterprises—things are more inclined to be seen in proper prospective. His approach to problems is impartial—personal interest does not color judgment. He has time for concentration—free from routine duties. For an owner or operator these advantages have real value.

Case types parallel those of medical doctors. A certain part of the organization may need treatment. It may be a department which does not function properly or a product which is not selling well or is costing too much to make. Professional service in these cases is localized—much like setting a broken bone or treating a wound. There is the business which is gradually running down—incipient senility—needing rejuvenation. There is the business torn by internal dissensions, for which, like cancer, the knife is necessary. There is

"More-and-more the competent business consultant turns toward the constructive side and endeavors to redesign products for lower manufacturing cost and to increase sales with new and better appearing items. . . . It is no gain to the country, or to an industry, to reduce its working force; to increase the things which give comfort and pleasure is a definite gain."

CORSON PHOTOGRAPH FROM DEVANEY



the business which is suffering from malnutrition: tonics of new products may help. And then there is the business which is doing less and less well and the owners cannot agree on the cause of the trouble. Diagnosis is necessary to define the problem. Finally, there is the business which is apparently healthy, but harboring germs which sooner or later will cause disease. The danger in this case is that the doctor may not be called until too late.

When Consultant Is Useful

The qualified consultant contributes to business health by creating better cost and production control systems, simplifying paper work, developing incentives, streamlining the organization, valuing jobs, improving the arrangement of factory facilities, and serving in many other fields where application of specialized knowledge and experience brings worthwhile results.

In addition to services to going enterprises, the management engineer is valuable as counsel in programs contemplating purchase, sale, merger, or expansion of businesses.

For collection of special information and statistical analysis of situations the consultant is most useful. When the

information sought is confidential, engagement of an independent engineer is preferable to that of a large organization. The individual in his prowling is less noticeable and therefore less likely to arouse premature publicity.

An outside engineer can frequently bring to light situations within an organization which personal interest or company politics hide from higher management. An acceptable visitor may often accomplish by suggestion where executive edicts have fallen flat.

Many people think of the efficiency expert as a bespectacled young man with a stop-watch measuring the movements of the ditch digging gang, showing the men how to hold and swing the shovel, how to move more efficiently. The object—more dirt per man per day. A popular conception, but not a true one. Motion studies with stop-watches are still made, but usually to set-up bases for wages and to find out what certain kinds of work cost. The management engineer to-day is not so much concerned with increasing the output of a ditch digger. The diggers might

resent it. They have unions and votes. What the engineer does is to find out how the dirt could be dug better and more easily—perhaps by machinery; and he is primarily interested in finding out whether or not the ditch need be dug at all.

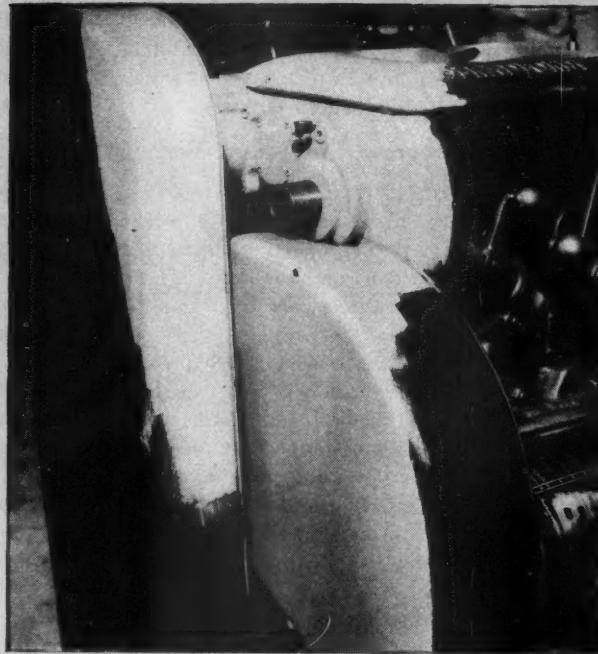
Let me tell of a couple of cases which illustrate how the engineer works. Names and products are imaginary but the situations are real. These are typical, but it must be kept in mind that every business problem is individual and often unique. I never met an executive who did not say "But my business is different." And, in a very true sense, he is right.

The Invisible Wig Company makes wigs. Years ago wig making was a big business and there were scores of competitors. Now there are only four companies in the field. The engineer-consultant found that the Invisible Company was well managed, had little overhead, and no deadwood on its payroll. He studied manufacturing and selling methods and saw little oppor-

(Continued on page 48)

"The qualified consultant contributes to business health by creating better cost and production control systems, simplifying paper work, developing incentives, streamlining the organization, valuing jobs, improving the arrangement of factory facilities, and serving in many other fields . . . where knowledge and experience bring worthwhile results."





THROUGH THE SIMPLE USE OF COLOR, APPLIED FUNCTIONALLY RATHER THAN ARTISTICALLY, INDUSTRY HAS AT ITS COMMAND A MEDIUM TO PROMOTE BETTER EFFICIENCY, SAFETY, AND INDUSTRIAL RELATIONS. APPLICATION OF COLOR TO A PORTION OF THE ABOVE MACHINE GIVES OBSERVERS A CHANCE TO STUDY ITS EFFECT IN INCREASING VISIBILITY.

Color Conditioning

AID TO GETTING WORK DONE

FABER BIRREN

Color Consultant

FEW years ago the applied science of color conditioning was virtually unknown to American industry. Many of its early applications had the novelty of a fad because of the rarity of seeing color used on the harsh brick walls and steel equipment of a factory. Yet functional color had had its origin in the hospital field and had been successfully tried in schools. Although the mere idea of color implied beauty and esthetics, it was clear that other and more serious purposes were to be served.

War years demanded maximum pro-

duction and maximum human efficiency. Because so many tasks performed in industry required critical use of the eyes, it was obvious that the brightness and color of the working environment were important. Glare and adverse eye adjustments brought about by wrong contrasts in the field of view not only caused eyestrain and fatigue but lowered manual skill and badly affected morale.

The advantages of color were promoted to increase production, improve human skill and quality of workman-

COLOR IS BEING APPLIED IN A CONTINUALLY WIDER EXTENT IN FACTORIES AND OFFICES TO REDUCE EYESTRAIN AND DRAW ATTENTION TO HAZARDS. WHAT RECENT DISCOVERIES HAVE CREATED A NEW APPROACH TO COLOR CONDITIONING? MEASURED FROM A DOLLAR AND CENTS VIEW-POINT WHAT SUCCESS IS THE FUNCTIONAL USE OF COLOR ACHIEVING IN (1) INCREASING PRODUCTION, (2) DECREASING LOST-TIME ACCIDENTS?

ship, lower the frequency of accidents, and raise the standards of plant appearance and maintenance. Through color, management could do a better production job and a better job of industrial relations.

To-day the economic and human aspects of color are better known. Many lessons have been learned, many reliable facts brought forth. It is the purpose of this article to record the accomplishments of several years of color research and to make a fair and competent estimate of its value to American industry.

That color conditioning is a unique science, little related to art or interior decoration, is now well understood. Color for its own sake is never enough. It is fallacious to assume, for example, that people work any harder or any better because of the delight provided by a striking use of color. In itself, color may be distracting and may readily compete for human attention, drawing it away from a task and setting up meaningless competition. Color conditioning is not in the least interested in personal opinions about color or artistic notions as to its emotional appeal. Quite to the contrary, the best of scientific practise requires that color be applied to make seeing easier, to smooth out unfavorable contrasts, min-

imize constant eye adjustments, draw attention to tasks and hazards—objectives which, fortunately, may follow technical method and be accurately measured in their effectiveness.

Progressed the Hard Way

While there are no positive criteria to judge the color treatment of a hotel lobby, a theater, or the living room of a home, color conditioning in industry is almost entirely concerned with factual and statistical results. Emotional factors are set aside for such palpable facts as production records, accident rates, and medical studies which chart the state of the human eye under different working conditions. Color conditioning has progressed the hard way by proving its worth and building its principles upon clinical analyses and case histories.

Good seeing depends upon color and brightness relationships in the field of view. Visibility is directly related to color difference. Too much brightness may cause glare; too much darkness may cause materials and machines to be indistinguishable. Although the whole process of seeing may depend upon light, it is evident that light has meaning solely in terms of the surfaces and objects it reveals to the eye. The eminent lighting authority, M. Luck-

ish, has written: "A visual task is inseparable from its environment High visibility, ease of seeing, and good seeing conditions are overwhelmingly the result of good brightness engineering."

What is quite new to the science of seeing is recognition of the fact that brightness and color dominate human vision; control of them is very often more significant than light level itself and more difficult to engineer.

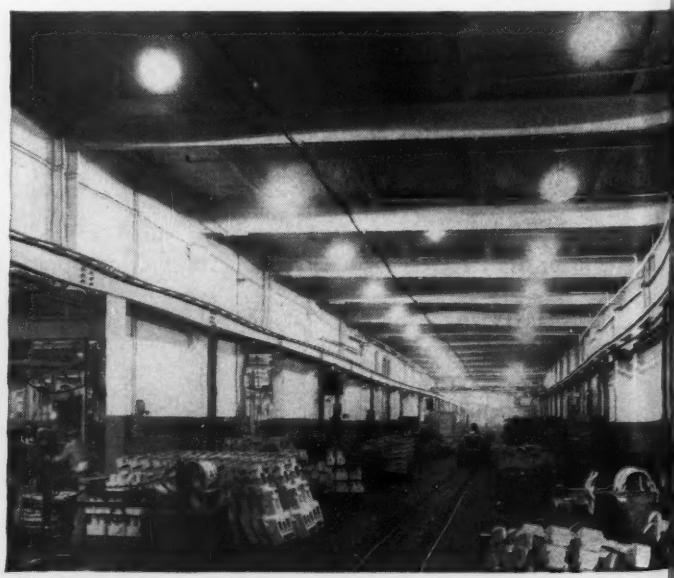
A few years ago seeing problems were approached almost wholly in terms of light intensity, the factor of color being quite secondary. As greater lighting efficiency was achieved through technical advancement, good illumination of adequate intensity became economical and practical. Almost at once it became obvious that more light too frequently caused trouble. It often aggravated rather than relieved eyestrain. In some instances production records dropped seriously.

It is not difficult to explain the vital rôle of color in illumination and to point out that color conditioning is of great importance in establishing an ideal seeing condition. Because of a phenomenon known as *color constancy*, the human eye sees with relatively equal facility and ease under widely different light intensities. It is observ-

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BEFORE



AFTER

IN A FACTORY: THE SUCCESS OF PRELIMINARY TRIALS IN THE FUNCTIONAL USE COLOR RESULTED IN SPECIFICATIONS BEING WRITTEN FOR MORE THAN 100 ACRES FACILITIES IN THE CATERPILLAR TRACTOR COMPANY PLANT. SCIENTIFIC PRACTICE THUS ADDED EXTRA VALUES TO THE NECESSARY MAINTENANCE COSTS FOR PAINTING.



AFTER



BEFORE

IN AN OFFICE: A TWO-YEAR STUDY SUPERVISED BY THE U. S. PUBLIC HEALTH SERVICE OF THE BUSINESS MACHINES SECTION OF A GOVERNMENT BUREAU SHOWED A 5.5 PER CENT INCREASE IN EFFICIENCY AFTER THE INTRODUCTION OF BETTER LIGHT AND BETTER COLOR—WORTH \$139 PER WORKER OVER A YEARLY PERIOD.

able to all persons that seeing is efficiently performed in Winter as well as Summer, on clear days or cloudy days, in full light or moderate shadow. Now that light engineering has brought artificial illumination well above the dim levels of the past, degree of intensity is no longer the chief concern. Any plant or office may now have all the light it wishes. Thus where the light problem ends, the color problem begins.

In this connection, Ernst Simonson and Josef Brozek have reported in a recent issue of the *Journal of the Optical Society of America* (April 1948): "In general, illumination engineers tend to exaggerate the effect of variations in the illumination level." After a very complete set of tests these two investigators were unable to note much difference in ocular fatigue under light levels ranging from 5 to 300 foot-candles. They thus found reason to conclude: "The only possible interpretation is that fatigue trends resulting from visual work must be produced by components which are common at all illumination levels. The illumination level is by no means the all-important variable for the development of visual fatigue."

When high levels of illumination fail to relieve fatigue or to improve human efficiency, the cause may often be traced to poor control of color in the working environment. The most common error has been to use too much whiteness or brightness for the sake of high foot-candle readings. Yet high lighting efficiency may go hand in hand with low human efficiency—and for a very simple reason.

White vs. Softer Tone

Where, for example, an equal volume of light (footcandles) may be delivered upon two working surfaces, one having a white surrounding and one a softer background tone, human eyes may reach two different adjustments. Although the illumination level on the two tasks may be the same, the white surrounding will constrict the pupil opening of the eye and fog vision. The softer surrounding will cause no such interference and the worker will be able to see more clearly and with less strain.

Glare and brilliance are harmful to human eyes whether found in lighting fixtures or in surfaces and objects. And glare is usually relative to the bright-

ness adaptation of the eye. The mere striking of a match may produce discomfort if the eyes are dark-adapted. It is less blinding to stand at a window and look out with the entire field of view exposed to brightness than it is to peer from the far side of a room and attempt to accommodate the eyes for a small area of outdoor brightness set against a large area of indoor darkness.

The fact that is new to the sciences of illumination and color is that if extreme contrasts exist in the same field of view, the general light level of an interior must be kept down and may not safely exceed about 25 footcandles. High general light levels become tolerable and effective only where the colors of walls, floors, machinery, and equipment can be held relatively light in tone and kept as uniform in brightness as possible! Where the latter condition is attained, light levels approaching full daylight may be permitted. Without the proper control of color and brightness, the factor of light alone will not meet visual requirements.

From findings such as I have just cited, color conditioning has attained scientific status, and industry has ac-

cepted it as a sound and profitable contribution to many of its problems of production and labor relations. With technical advantages established, management is better able to decide upon the benefits of color and to determine its specific value in industrial practise.

The functional use of color has nothing to do with matters of style. It is not promoted to sell paint or new equipment in brighter finish. It is intended to pay dividends in increased efficiency and the conservation of human energy.

I have been privileged to present the scientific aspects of color conditioning before two national conventions of the medical profession¹. Through books and special publications, the best principles of color have been assembled for use in the graduate training of ophthalmologists. By and large the medical profession recognizes that color is intimately related to safe and hygienic seeing. Physicians and surgeons in the field of vision are to-day devoting specific attention to the industrial aspects of color in practically every leading medical school in America.

One of the most thorough investigations into the value of color in industry was published by the National Industrial Conference Board in 1947². Over

350 companies which had used color on a small or large scale were asked to comment in a long series of questions. The fact that a report was organized was in itself significant. Indeed the Board admitted a strong interest on the part of industry and acknowledged that more facts and case histories were needed.

Impressive Result Stories

It was found, however, that many "companies were unprepared to evaluate their programs primarily because of the difficulty involved in measuring the effects of a service as intangible as color." Yet despite the newness of the science of color conditioning, the facts divulged were quite impressive.

64.7 per cent of the companies stated that color had improved lighting.

27.9 per cent reported production increases.

30.9 per cent noted an improvement in the quality of work performed.

19.1 per cent commented favorably on reduced eyestrain and fatigue.

14.7 per cent credited color for reduced absenteeism.

All-in-all, 75 per cent of the companies were entirely or well satisfied with their color programs; 5.9 per cent were not satisfied; 19.1 per cent had no opinion one way or the other.

A competent and reliable evaluation of color has been prepared by the Public Buildings Administration in Washington and the United States Public Health Service³. This involved a two-year investigation of work production in a government office and was singular in that all details were carefully guided by authorities in the fields of vision, illumination, and color. Production data were assembled by the Bureau of Internal Revenue.

A controlled study was undertaken to measure the working efficiency of a group of employees using business machines. Three conditions were analyzed: (1) the original room; (2) with the addition of new lighting fixtures; (3) with the further addition of color.

The fact that uniform brightness is essential to efficient and comfortable seeing has, from the medical standpoint, been confirmed by the above report. Under the first condition, the highest brightness in the room mea-

(Continued on page 41)

¹ *Proceedings of a Conference on Industrial Ophthalmology*, Columbia University Press, New York 1947; *The Specification of Illumination and Color in Industry*, Faber Birren, *Transactions of the American Academy of Ophthalmology and Otolaryngology*, January-February 1947.

² *The Use of Color in Industry*, a Report by the National Industrial Conference Board, New York 1947.

³ *The Influence of Lighting, Eyesight, and Environment upon Work Production*, report of a two-year study made jointly by the Public Buildings Administration and the United States Public Health Service, Washington 1947.



FABER BIRREN

A NATIONALLY known color consultant as well as a pioneer in the functional use of color, Mr. Birren has selected colors for all manner of places—from big industrial plants, office buildings, and department stores to railway coaches, buses, street-cars, and filling stations. He likewise designs colors for consumer goods. During the war this color scientist devised a safety code which was widely utilized in defense plants and by the Armed Forces. A graduate of the University of Chicago and of the Art Institute of Chicago, Mr. Birren experimented in his studio in Westport, Connecticut, before organizing Faber Birren & Company in 1940. He is the author of twelve books and of numerous magazine articles.



"... FRIENDLY ATTENTION HOLDS A CUSTOMER"—CUSHING PHOTOGRAPHS

Why Retailers Lose Customers

N. H. COMISH

*Professor of Business Administration
University of Oregon*

ANY merchants are wondering why they are losing customers in these days of keen competition. To throw light on this problem, the author and some of his research students made a survey in 1948. A questionnaire, drawn up by the author, was distributed by competent investigators to representative store patrons in small towns, medium size cities, and one large city in Oregon.

The questionnaire was filled in by customers who were advised not to sign their names or designate the names of stores in any of the 26 retail classifications considered. There were 21,755 answers given for all kinds of stores, 1,872 answers given for women's wear

shops, and 2,619 answers set down for department stores.

Part of the results of this survey is in the chart (page 22). A glance at the chart shows that of all the reasons given by customers for discontinuing trade in all types of stores combined and in women's wear shops, high prices ranks first, although it was second in the case of department stores.

Poor quality stands second as a reason causing patrons to withdraw their trade from all sorts of stores taken as a whole, but it is fifth among the causes in the instance of women's wear shops and fourth in the case of department stores. Delay in store services is third in the case of all retail institutions taken

together, but it is sixth in the instance of women's wear shops and third in the case of department stores.

The indifference of salespeople is very high as a cause for discontinuing trade. While on a percentage basis it is only fourth in the instance of all stores combined, it is third in the case of women's wear shops and first in the instance of department stores.

Misrepresentation of merchandise is fifth in the case of all retail establishments taken as a whole, but is just eighth in the instance of women's wear shops and merely eleventh in the case of department stores. Over-insistence of salespeople is more important as a reason for transferring patronage else-

where in women's wear shops and department stores than misrepresentation of goods, but less significant in all types of stores combined. Haughtiness of salespeople is pretty vital in the case of women's wear shops and department stores, ranking among causes second and fifth respectively—although merely seventh in the case of all kinds of retail establishments taken as a whole.

The other reasons given by customers for discontinuing trade at stores they formerly patronized are relatively minor. They are store arrangement or appearance, attempted substitution of merchandise, errors, reluctance to exchange goods, wrong policies of management, tricky methods, ignorance of goods, and poor advertising.

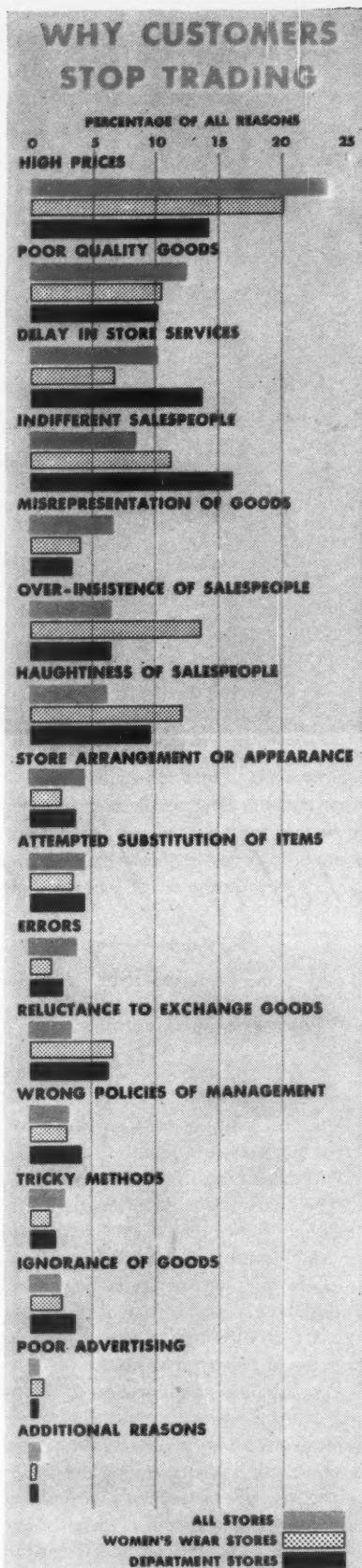
The Principal Defect

A more careful and detailed analysis of the figures in the chart, however, gives a different emphasis to high prices of goods and poor quality merchandise as reasons for withdrawing trade from the stores under consideration. While it is true that these reasons are vital causes for stopping patronage at stores, inefficient salesmanship plays a greater rôle than either of the former reasons.

Inefficient salesmanship is partly reflected through delay in store services, the indifference of salespeople, the misrepresentation of goods, over-insistence and haughtiness of salespeople, attempted substitution of items, errors, tricky methods, and ignorance of merchandise. If the percentages of frequencies for these causes be added, the total figures far outweigh either the reason of high prices or poor quality goods as causes for discontinuing trade.

Indeed, the figures stand at 51.72 per cent for inefficient salesmanship as against 23.59 and 12.31 per cent for high prices and poor quality merchandise in the case of all kinds of retail institutions taken together. For women's wear shops, they stand at 55.99 per cent for inefficient salesmanship as against 19.93 per cent and 10.37 per cent respectively for high prices and poor quality goods. For department stores the figures are 63.97 per cent for inefficient salesmanship as against 13.91 per cent for high prices and 10.08 per cent for poor quality merchandise.

But it is hardly fair to attribute en-



tirely as faults to salespeople the delay in store services, errors, attempted substitution of goods, and tricky methods. Undoubtedly, retail officials must share in these defects. But when allowance is made for sharing in these faults, inefficient salesmanship, which combines several reasons in the study, is still the most significant cause for the discontinuance of trade at all types of retail establishments taken together and at women's wear shops and department stores.

How then can many merchants help stop the loss of customer trade? First of all, by training their salespeople in a favorable approach to patrons; one that is prompt, pleasant, courteous, and businesslike. Second, by inspiring their salespeople to acquire an adequate knowledge of merchandise. The very least that a salesperson should know is the origin of his merchandise, of what it is made, how to use it, how to keep it properly when not in use, its location, and price lines.

Third, by determining what selling appeals to employ. Fourth, by knowing how to answer effectively and adequately the common objections to buying. Fifth, by learning how to close sales effectively and without offense. Or briefly, "How to sell goods that won't come back to customers who will."

Sixth, by realizing that many retailers should lower some of their prices. It seems as if too many merchants have forgotten that there are two ways to make a profit. One method is that of charging high prices, resulting in slow stock turnovers. The other method is that of charging lower prices, resulting in more rapid stock turnovers. This method they seemingly have forgotten. But a sufficient loss of trade might prompt their memories for the good of themselves and the public. Let us hope however that the time of prompting will not be lengthened to any retailer's ruination.

Finally, some store operators might buy more wisely in accordance with customer demand and improve their management so that patrons will approve it in a greater degree. These are some of the methods that will help to hold customers and, perhaps, regain some that have been lost.



HIGHLAND LIGHT, NORTH TRURO, CAPE COD, MASSACHUSETTS—WINSTON POTE PHOTOGRAPH FROM DEVANEX

*G*UIDANCE DURING THE COMING YEAR MAY BE PARTLY DRAWN FROM THE RECORDS OF THE PAST. HOW HIGH IS EMPLOYMENT . . . AT WHAT LEVEL IS INCOME . . . HOW MUCH IS PRODUCTION INCREASING . . . HOW GOOD IS BUSINESS? THE ANSWERS TO THESE QUESTIONS WILL LIGHT THE WAY IN 1949.

The Trend of Business

PRODUCTION . . . PRICES . . . TRADE . . . FINANCE

*W*HAT the business man may expect in 1949 may be answered to some extent by viewing the record of 1948. The levels reached during the past year in production, employment, income, prices, trade, and failures are important indicators in directing the business man through the coming year.

By the end of 1948 many of these indicators had reached unprecedented heights. Some had dipped slightly from record peaks, some continued to rise fractionally, but generally they were maintained at what might be considered a plateau—a very high plateau.

Despite some exceptions, business in 1948 was at a peacetime level that had never before been reached. Whether it will continue at that level, increase, or decline is a question for the future. The relative possibility of these changes actually occurring in 1949 is a question for the present; this may be answered

by a close analysis of the different indicators.

Production Industrial output reached a record peacetime level in October; in each month of 1948 it has exceeded the previous peaks that were attained in the preceding year. While November holidays, scattered strikes, and transportation difficulties hampered some industries, over-all production was sustained

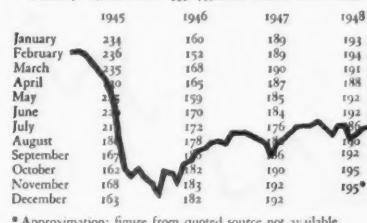
near the very high level of last month.

Many industries operated at all-time record high levels during October, November, and early December. Among these were the oil, steel, electric power, and paperboard industries. Bituminous coal output dipped moderately, but it compared very favorably with the high production mark of a year ago.

Automobile production fell fractionally in November as holiday closings prevented assemblers from attaining the record high reached in October. With the resumption of full scale operations in early December, the output of motor vehicles rose rapidly.

These record production levels were being maintained against an unusually large volume of orders. While unfilled orders were not piling up as in the days immediately following the end of the war, many manufacturers were operating against large backlog. This was

Industrial Production
Seasonally Adjusted Index: 1935-1939=100; Federal Reserve Board



* Approximation; figure from quoted source not available.

particularly true among producers of durable goods.

The usual mid-year drop in nondurable goods production was sharper in 1948 than in any other year since the war. During the final half of the year production in most nondurable goods industries was close to the comparable 1947 levels and was slightly below the record wartime peaks.

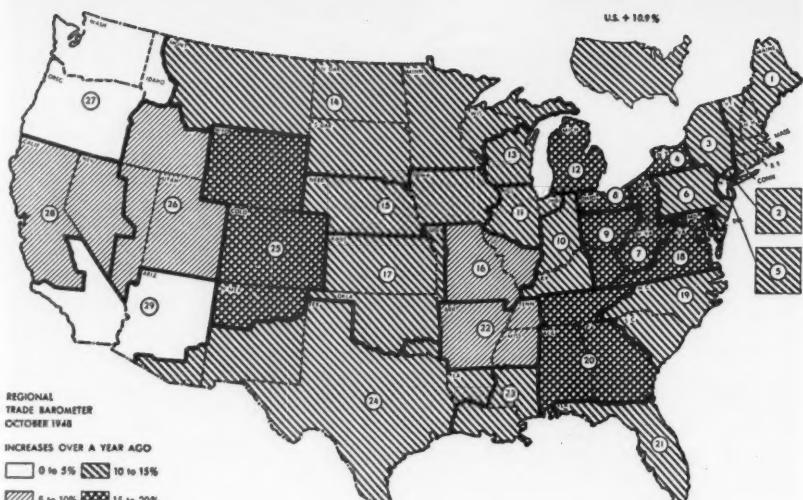
The high output of building materials helped to remove one of the obstacles to current building programs. A slight seasonal decline appeared in the construction industry in November although such variations in this industry in recent years have been negligible. The total value of civil engineering construction in 1948 was about 25 per cent above the 1947 level.

Employment In the middle of 1948 there were more men and women employed than there had ever been before. Fractional declines, mostly seasonal, occurred during the following months and by November total employment was almost equal to the previous peak that was reported in mid-1947.

Most of the increases in 1948 were the result of a rise in nonagricultural employment. Employment on the farms has been rather steady during the past year after considering the usual seasonal variations, but it has not reached the high levels of pre-war years. This may reflect to some extent the introduction of more efficient methods in farming.

The steady decline in unemployment during the past three years brought the figure in November close to a peacetime low. With less than two million unemployed persons to draw upon, there may be considerable difficulty in increasing total employment in the near future unless the labor force itself increases.

The total civilian labor force was at an all-time high in July of this year. The slight declines since then have been largely seasonal; the increased number of persons in the armed forces in recent months have had no marked effect upon the ranks of the civilian labor force. Any further increases in the size of this force will probably be very limited.



TRADE ACTIVITY IN TWENTY-NINE REGIONS

REGION:	% Change from			REGION:	% Change from		
	Oct.	Oct.	Sept.		Oct.	Oct.	Sept.
United States.....	306.8	+10.9	+4.3	15. Iowa and Nebraska.....	336.2	+13.7	+13.4
1. New England.....	229.0	+10.4	+4.2	16. St. Louis.....	268.4	+9.6	+6.6
2. New York City.....	250.7	+12.5	+10.1	17. Kansas City.....	337.2	+14.4	+18.2
3. Albany, Utica, and Syracuse.....	298.0	+14.9	+26.4	18. Maryland and Virginia.....	303.5	+17.9	+4.5
4. Buffalo and Rochester.....	302.0	+17.6	+1.5	19. North and South Carolina.....	337.5	+14.5	+1.6
5. Northern New Jersey.....	226.1	+13.6	+17.0	20. Atlanta and Birmingham.....	415.1	+16.5	+5.1
6. Philadelphia.....	274.8	+11.9	+2.8	21. Florida.....	377.1	+10.6	3.6
7. Pittsburgh.....	305.4	+18.3	+7.4	22. Memphis.....	351.8	+6.2	+3.4
8. Cleveland.....	327.8	+18.1	+12.8	23. New Orleans.....	352.8	+12.2	-0.8
9. Cincinnati and Columbus.....	333.4	+18.4	+8.4	24. Texas.....	389.3	+14.1	-1.1
10. Indianapolis and Louisville.....	342.2	+14.0	-0.3	25. Denver.....	346.9	+15.6	+19.6
11. Chicago.....	288.3	+10.4	+6.9	26. Salt Lake City.....	316.9	+9.3	+5.7
12. Detroit.....	346.8	+15.6	+25.1	27. Portland and Seattle.....	330.5	+4.8	+1.4
13. Milwaukee.....	323.1	+12.8	+7.4	28. San Francisco.....	309.6	+6.4	+2.2
14. Minneapolis and St. Paul.....	326.2	+10.9	+9.0	29. Los Angeles.....	314.0	+3.5	+1.7

Trade Retail stores in 1948 reported the highest dollar volume of sales in history. Most monthly figures exceeded the corresponding level in the previous peak year, 1947. While there was almost no seasonal dip in retail sales in the Summer months, some declines were reported during the late Fall.

Retail volume recovered somewhat during early December from the slight decline in consumer buying which occurred in November. The November dip in retail sales was generally attributed to a return to traditional shopping habits wherein consumers deferred their purchasing of Christmas

gifts until after Thanksgiving. The total dollar volume of November retail trade was close to the 1947 level; unit volume in some lines was down considerably.

Promotional sales of seasonal merchandise and gifts were frequent; most Christmas shoppers were more selective than in previous post-war years. While volume in some luxury goods increased slightly, consumers generally focused their attention on moderately priced practical gifts. The demand for almost all foods was high and steady. Some types of apparel were popular, but overall volume in both women's and men's clothing declined slightly.

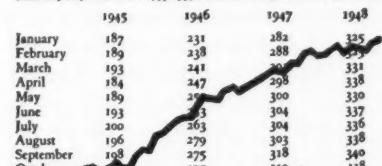
Employment

Millions of Persons: U. S. Bureau of the Census



Retail Sales

Seasonally Adjusted Index: 1935-1939=100: U. S. Department of Commerce



* Approximation; figure from quoted source not available.

SIGNIFICANT INDICATORS

COMPILED BY THE PUBLISHERS OF "DUN'S REVIEW"

More detailed figures appear in Dun's Statistical Review.

WHOLESALE FOOD PRICE INDEX

The index is the sum total of the price per pound of 31 commodities in general use. It is not a cost-of-living index:

1948	1947	1948
Dec. 14. \$6.21	Dec. 16. \$7.02	High July 13. \$7.36
Dec. 7. 6.33	Dec. 9. 7.12	Low Dec. 14. 6.21
Nov. 30. 6.36	Dec. 2. 7.17	1947
Nov. 23. 6.38	Nov. 25. 7.06	High Dec. 30. \$7.24
Nov. 16. 6.37	Nov. 18. 6.95	Low May 20. 5.95

DAILY WHOLESALE PRICE INDEX

The index is prepared from the spot closing prices of 30 basic commodities (1930-1932=100).

	Dec.	Nov.	Oct.	Sept.	Aug.
1....	271.52	269.45	272.52	280.87	†....
2....	271.36	272.41	280.10	280.89	
3....	271.01	269.76	†....	278.60	280.84
4....	271.92	270.78	271.76	281.17	281.60
5....	†....	271.09	271.37	†....	280.33
6....	272.07	271.13	272.37	†....	281.16
7....	271.12	†....	274.40	277.97	281.41
8....	270.87	270.26	275.30	279.68	†....
9....	270.30	270.93	274.78	280.29	281.20
10....	266.49	270.74	†....	280.44	280.32
11....	268.75	†....	274.67	280.45	280.81
12....	†....	270.71	†....	282.15	
13....	268.59	270.28	274.05	280.03	282.07
14....	268.20	†....	273.17	280.78	281.99
15....	....	270.38	273.05	281.12	†....
16....	....	271.10	273.19	280.54	281.35
17....	....	271.20	†....	279.80	280.41
18....	....	270.58	273.73	279.82	280.07
19....	....	271.45	274.13	†....	279.13
20....	....	271.78	273.74	279.08	278.13
21....	....	†....	273.46	278.72	277.67
22....	....	272.22	273.11	276.63	†....
23....	....	272.79	272.60	277.23	275.68
24....	....	272.51	†....	276.76	274.65
25....	....	271.50	275.61	276.68	
26....	....	270.86	270.31	†....	278.05
27....	....	270.84	270.80	272.41	270.19
28....	....	†....	269.62	273.88	278.29
29....	....	271.80	270.11	273.46	†....
30....	....	272.31	269.73	272.48	278.12
31....	....	†....	....	279.46	

† Sunday. * Markets closed.

BUILDING PERMIT VALUES—215 CITIES

Geographical Regions:	November	P. Ct.	Change
New England.....	\$17,918,084	\$18,533,566	- 3.3
Middle Atlantic.....	72,082,825	63,652,756	+ 13.2
South Atlantic.....	25,062,852	29,790,487	- 12.8
East Central.....	46,548,545	56,060,115	- 18.3
South Central.....	36,668,603	35,103,383	+ 4.3
West Central.....	16,030,423	18,958,111	- 15.4
Mountain.....	14,430,064	6,753,071	+113.7
Pacific.....	53,293,276	59,971,425	- 11.1
Total U. S.....	\$82,974,572	\$80,822,815	- 2.4
N. Y. City.....	\$40,415,458	\$34,383,667	+ 43.7
Outside N. Y. City.....	\$233,559,114	\$255,439,348	- 8.6

THE FAILURE RECORD

Nov.	Oct.	Nov. P. C.
DUN'S FAILURE INDEX*	1948	1948 Chg. †
Unadjusted.....	22.9	21.1 17.3 + 3
Adjusted, seasonally.....	22.9	24.0 17.1 + 34
NUMBER OF FAILURES.....	460	461 313 + 47
NUMBER BY SIZE OF DEBT		
Under \$5,000.....	70	78 65 + 8
\$5,000-\$25,000.....	246	240 143 + 72
\$25,000-\$100,000.....	105	101 73 + 44
\$100,000 and over.....	39	42 32 + 22
NUMBER BY INDUSTRY GROUPS		
Manufacturing.....	129	112 124 + 4
Wholesale Trade.....	55	69 26 + 112
Retail Trade.....	208	188 115 + 81
Construction.....	37	40 25 + 48
Commercial Service.....	31	52 23 + 35

(Losses in thousands)

CURRENT LIABILITIES.....	\$24,416	\$101,060	\$16,345 + 49
TOTAL LIABILITIES.....	23,059	103,175	16,624 + 51

* Apparent annual failures per 10,000 enterprises, formerly called DUN'S INSOLVENCY INDEX.

† Per cent change of November 1948 from November 1947.

FAILURES BY DIVISIONS OF INDUSTRY

(Current liabilities in thousands of dollars)	Number		Liabilities	
	1948	1947	1948	1947
MINING, MANUFACTURING,	1,326	1,163	108,312	121,790
Mining—Coal, Oil, Misc....	17	10	1,021	572
Food and Kindred Products	162	95	13,218	18,855
Textile Mill Prods., Apparel	148	95	5,053	4,906
Lumber, Lumber Products...	240	161	8,887	12,894
Paper, Printing, Publishing	53	29	2,920	1,043
Chemicals, Allied Products	47	54	3,315	9,900
Leather, Leather Products	60	42	2,155	2,342
Stone, Clay, Glass Products	42	39	2,572	1,710
Iron, Steel, and Products	73	70	8,649	5,210
Machinery.....	205	268	34,891	37,948
Transportation Equipment	41	46	8,192	9,400
Miscellaneous.....	238	263	15,639	17,010

The DUN'S REVIEW trade barometer, measuring the level of consumer buying in terms of the 1935-1939 average level, fell 4.6 per cent in November to 292.7 (preliminary). This barometer, adjusted for seasonal variations and the number of business days in the month, was 0.5 per cent above the 291.2 of a year ago.

The final barometer for October at 306.8 was 4.3 per cent above September's 294.2 and was close to peak levels. It was 10.9 per cent above the October 1947 barometer of 276.7.

Consumer buying in the 29 regions was without exception above a year ago. Gains varied from a low of 3.5 per cent in the Los Angeles Region (29) to 18.4 per cent in the Cincinnati and Columbus Region (9).

The barometers for those regions in the Northeastern section of the country continued to be among the lowest. The lowest barometer for the fourth consecutive month was that for the Northern New Jersey Region (5).

The barometers for the Southern and Southwestern regions remained well above the national average. At 415.1, the barometer for the Atlanta and Birmingham Region (20) was the highest.

Wholesale order volume declined slightly in November but remained close to the level of a year ago. While there was a sharp rise in re-order volume for some seasonal and holiday goods in the early part of December, many retailers intensified their promotional campaigns in order to reduce inventories.

Income The volume of consumer buying and business generally is largely dependent upon personal income. By the end of the third quarter of 1948 personal income, which has risen steadily since 1941, reached a new all-time peak. In terms of an annual rate it was close to \$215 billion.

This huge volume of potential spending power was considerably larger than the \$72.6 billion in 1939 and far exceeded the \$85.1 billion in 1929. Of this income about 10 per cent went to farmers and farm workers. Nearly 63 per cent was paid out in the form of wages and salaries. Dividends and personal interest income accounted for approximately 8 per cent.



Letter to a Customer

He happened to be a lawyer . . . had just been given the job of planning an investment program for a widow — and promptly asked us to help.

Of course, being a customer, he was already familiar with our Research Division . . . knew that it devotes all its time to planning just such programs, supplying the information asked for in hundreds of letters each week, appraising securities and portfolios without charge to anybody—whether a customer or not!

He thought Research would be glad to help—and it was!

The sum involved was fifty thousand dollars—but could just as well have been five thousand—or five hundred thousand!

The lady was a widow; so naturally the plan had to stress conservation of principal, continuity of income. Research picked eleven securities . . . gave good reasons for each selection . . . included recent market prices, probable annual income—and sent what we thought was a satisfactory "letter to a customer".

If you'd like to see this actual sample of a Merrill Lynch service, we'll be glad to send you a copy. But why not get a report on your own situation? Just ask for an analysis of your own holdings . . . the available facts on any securities that might interest you . . . sensible suggestions on how to invest any amount of surplus funds. There's no charge, no obligation. You can visit our office yourself, or write direct to—

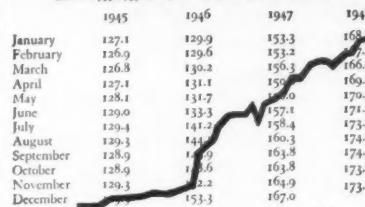
Department U-2

**MERRILL LYNCH,
PIERCE, FENNER & BEANE**

70 Pine Street, New York 5, N. Y.
Offices in 96 Cities

Consumers' Price Index

Index: 1935-1939=100, U. S. Bureau of Labor Statistics



* Approximation; figure from quoted source not available.

Wholesale Commodity Prices

Index: 1926=100, U. S. Bureau of Labor Statistics



* Approximation; figure from quoted source not available.

In recent months there has been almost no change in average weekly earnings in manufacturing industries. Personal income has also remained steady at a record high. It is likely that no marked changes will occur in the general income level in the near future although scattered demands for higher wages may be anticipated. The number and size of such demands will be determined to some extent by the level of prices.

Prices Consumers have been faced with rising prices since 1939. During the war years the general level was artificially restricted to moderate monthly increases. This restriction was partly successful in opposing the inflationary forces that began long before the war, but received their greatest impetus during the war.

With the removal of price controls the Consumers' Price Index compiled by the United States Bureau of Labor Statistics rose rapidly. By the middle of 1948 it reached a peak nearly 75 per cent above the 1939 level. Since then it has been fairly steady. Some fractional declines were reported in October and November largely as a result of lower prices for food.

Wholesale prices levelled off near mid-1948 and some slight dips occurred in the following months. Despite these declines, the general level remained well above that of a year ago. While the prices for many foods fell noticeably in October and November, the prices for commodities other than farm products and food were virtually unchanged.

The general wholesale price level may be expected to remain somewhat steady for the present. Some further declines will occur in some lines, but these will be largely offset by moderate increases in other lines. It is difficult to foresee any marked changes occurring in the over-all wholesale price level al-

though numerous small changes in individual lines are probable.

Finance Industrial stock prices dropped sharply following the preliminary announcements of the November election returns. Some slight increases occurred by the middle of the month, but these were followed by further moderate declines.

Trading volume in the New York Stock Exchange subsided shortly after the post-election wave that reached considerable proportions. During the latter half of November and early December trading was at a moderately high level.

The selling of Government bonds, which had resulted in large purchases by the Federal Reserve Banks to support the established price, halted rather suddenly in November. Many Federal Reserve Banks were able to dispose of some of their holdings as buying rose. The increase in the demand for Government bonds was not particularly large.

Commercial, industrial, and agricultural loans rose to a new high by mid-November. They declined slightly in the following weeks which was unusual in the light of the year-end rise in 1947.

Failures Business failures were virtually unchanged in November at 460, one less than in the preceding month. The number of failures was 47 per cent above those of a year ago and exceeded those in any other November since 1942. They were considerably less than the 1,042 reported in 1940.

According to the FAILURE INDEX, businesses were failing at the rate of 23 a year for every 10,000 concerns; this was more than the 17 a year ago, but was well below the 60 in 1940. This index, seasonally adjusted, projects the monthly failures to an annual rate.



Through the magic of
Recordak microfilming

... you can record
over 60 letters
a minute

• With Recordak microfilming, you can do things so fast . . .
so accurately . . . so simply . . . so inexpensively.
So fast: you can record 60 letters a minute feeding them
into the machine by hand . . . up to 125 a minute
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So accurately: no transcription errors with Recordak micro-
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Microfilmer; they take their own picture . . . at great reduction.
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RECORDAK

(Subsidiary of Eastman Kodak Company)

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— and its application to business systems

Recordak is a trade-mark



Union Pacific's daily Streamliners provide splendid accommodations for both Pullman and Coach passengers. Superb Dining-car meals . . . restful Club and Lounge cars . . . and a smooth roadbed add to the pleasure of your journey — from beginning to end.

Streamliner "CITY OF LOS ANGELES"

Between Chicago-Los Angeles

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Between Chicago-Portland

ALL STREAMLINER COACH SEATS ARE RESERVED

* * *

Also overnight service every night between Chicago and Denver on the Streamliner "CITY OF DENVER."

Daily service on the Streamliner "CITY OF ST. LOUIS" between St. Louis and Denver . . . with through cars to the West Coast.

UNION PACIFIC RAILROAD
Road of the Streamliners

The liabilities involved in November failures fell sharply from the unusually high level of the previous month. The total of \$24,416,000 was the highest November figure since 1932.

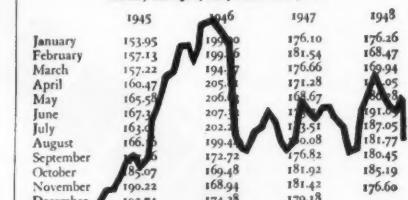
Failures in the retail trade rose to 208, the highest monthly total during the past five years. Manufacturing failures rose moderately, while failures in other industry and trade groups were less numerous than in the preceding month.

There was a moderate monthly increase in the number of failures involving liabilities from \$5,000 to \$100,000. The number with liabilities from \$100,000 to \$1,000,000 remained unchanged at 36. Slight declines were reported in the number of failures with liabilities of less than \$5,000 and also with liabilities of more than \$1,000,000. In all size groups the total number of failures exceeded the corresponding 1947 levels.

Businesses begun in the post-war period accounted for 62 per cent of the month's failures. The remaining 38 per cent of the month's casualties were about evenly divided between warborn and pre-war businesses; failures are less frequent among older businesses.

Industrial Stock Prices

Monthly Average of Daily Index: Dow-Jones



BANK CLEARINGS—INDIVIDUAL CITIES

(Thousands of dollars)

	November	1947	% Change
Boston	2,130,710	1,897,707	+12.3
Philadelphia	4,012,000	3,538,000	+13.4
Buffalo	370,881	338,619	+9.5
Pittsburgh	1,356,187	1,091,252	+24.3
Cleveland	1,438,887	1,221,937	+17.8
Cincinnati	780,104	673,770	+15.8
Baltimore	947,180	820,995	+15.4
Richmond	572,223	518,843	+10.3
Atlanta	1,078,100	910,500	+18.4
New Orleans	563,364	486,179	+15.9
Memphis	521,516	520,785	+0.1
Chicago	3,220,715	3,111,043	+3.5
Detroit	1,730,431	1,528,458	+13.2
St. Louis	1,206,775	1,091,700	+18.8
Louisville	550,433	471,659	+16.7
Minneapolis	1,233,285	1,087,589	+13.4
Kansas City	1,416,160	1,275,141	+11.1
Omaha	537,122	594,934	+9.7
Denver	480,377	437,664	+9.8
Dallas	1,006,913	974,483	+12.6
Houston	911,627	806,762	+13.0
San Francisco	1,663,080	1,688,603	+1.5
Portland, Ore.	660,504	588,858	+13.7
Seattle	505,404	407,032	+24.2
Total 24 Cities.....	29,083,077	26,083,572	+11.5
New York	28,591,378	27,288,496	+4.8
Total 25 Cities.....	57,675,355	53,371,068	+8.1
Average Daily.....	2,507,624	2,425,958	+3.4

BANK-MONEY

*helps to fill
your tank!*



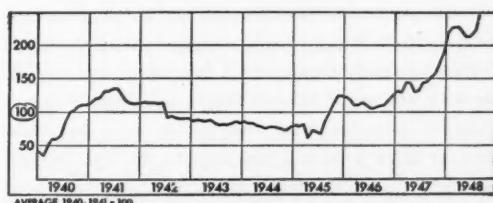
THE petroleum industry finds bank loans well suited to its requirements. Bank credit is flexible, available when needed, and can be paid off when not needed.

For these reasons, many oil companies have relied upon banks for one-third or more of the money which they borrow from all sources.

Chase National Bank, with a separate department dealing exclusively with

the petroleum industry, is a leader in making loans to the oil companies. No matter where you live, Chase credit helps to keep your car rolling.

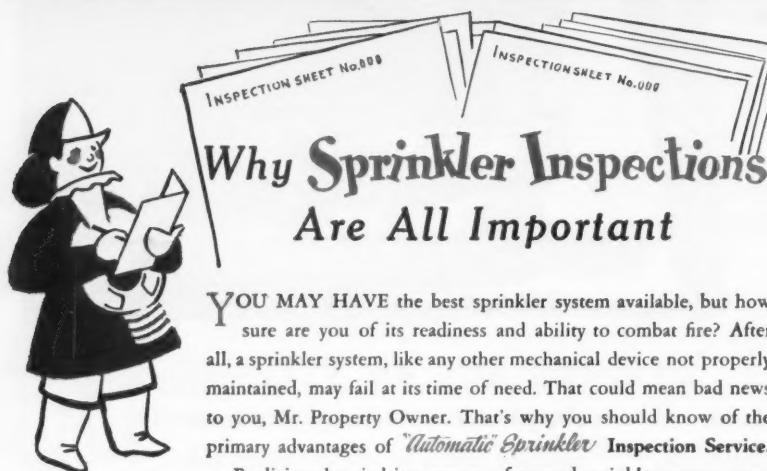
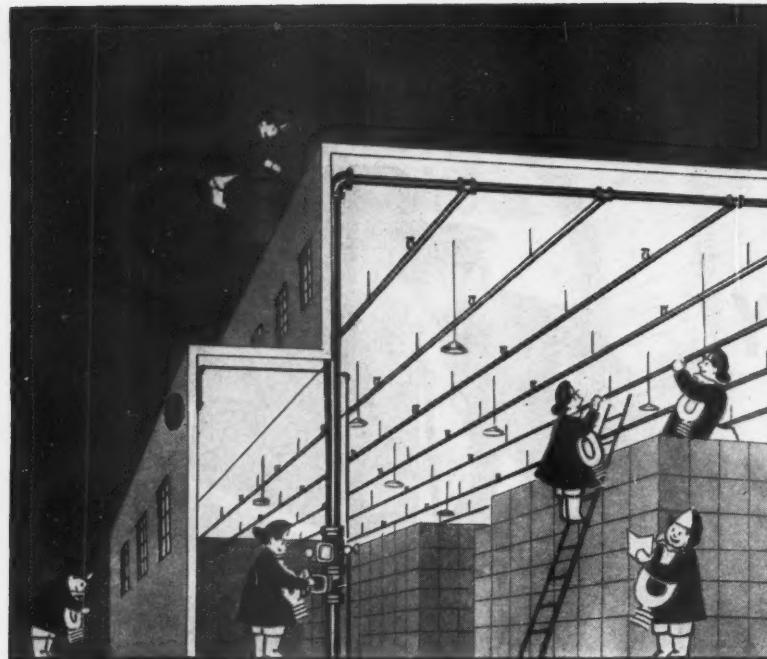
CHASE OIL LOAN INDEX



*Chase finances
the every-day things
you use*

**THE CHASE NATIONAL BANK
OF THE CITY OF NEW YORK**

Member Federal Deposit Insurance Corporation



Why Sprinkler Inspections Are All Important

YOU MAY HAVE the best sprinkler system available, but how sure are you of its readiness and ability to combat fire? After all, a sprinkler system, like any other mechanical device not properly maintained, may fail at its time of need. That could mean bad news to you, Mr. Property Owner. That's why you should know of the primary advantages of *"Automatic" Sprinkler Inspection Service*.

Realizing the vital importance of assured sprinkler system operation, *"Automatic" Sprinkler*, at the advent of its business some 55 years ago, established an **Inspection Service** Department. **Inspection Service**, which is handled only by individuals thoroughly familiar with all types of sprinkler equipments, actually augments periodic insurance bureau inspections and provides you with a double check on the general efficiency of your fire protection equipment.

Inspection Service detects minor irregularities and provides for correction before major repairs are necessary. It brings to your attention the need of extensions to your present equipment should property expansion so demand. In short, *"Automatic" Sprinkler Inspection Service* is an integral factor in every over-all fire safety program and its true value worth considerably more than is the small annual charge that is made for it.

Don't wait for fire to strike and then hope for the best. Be assured through **Inspection Service** that your fire protection will really protect, today—tomorrow—next week or whenever it is needed. *"Automatic" Sprinkler Corporation of America, Youngstown 2, Ohio.*

"Automatic" Sprinkler
FIRST IN FIRE PROTECTION
DEVELOPMENT • ENGINEERING
OFFICES IN PRINCIPAL CITIES OF NORTH AND SOUTH AMERICA

HERE
and
THERE

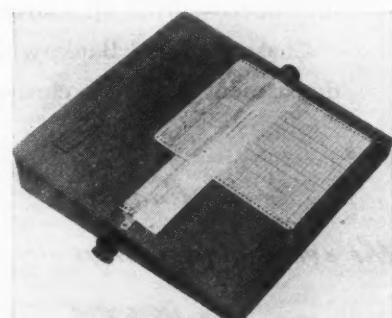
Rust-Free Packaging—Facilitating the packaging of iron and steel products is the new Nox-Rust Vapor Wrapper which often can be used in place of liquid or grease rust preventative coatings. The wrapper, a special kraft paper treated with a chemical, is manufactured by the Nox-Rust Chemical Corporation, Chicago.

To obtain corrosion protection it is merely necessary to wrap the product in the paper as the slow vaporization of a synthetic chemical contained in the wrapper completely surrounds the part with a vapor sheath. It is not necessary for the wrapper to be sealed or even tightly wrapped nor does the part need to come into contact with the wrapper. The vapor mixes any moisture or water within the package to render the moisture harmless.

The vapor is odorless, non-toxic, and not injurious to the skin. The chemical itself is not consumed in preventing corrosion and lasts indefinitely.

Preparing Payrolls—A single writing for each employee record is provided in a payroll procedure developed by Business Systems Incorporated, Brooklyn. This method likewise simplifies the handling of accounts receivable, accounts payable, the perpetual inventory, installment payments, credit control, and various special applications.

The firm devises and sells forms to fit the client's individual needs for use with a simply constructed machine known as the "Pay-comptroller." This



HIS CRIME... A LIGHTED MATCH



HE is behind bars because he thought that the easiest way to obtain money was to burn down his own store and collect the insurance, which was in excess of \$80,000.00!

Had he been successful, every fire insurance policy holder would have indirectly paid some of his ill-gotten gains, for a portion of that money would have come from fire insurance premiums.

But he was not successful because of the alert work of the Arson Detection Bureau of the National

Board of Fire Underwriters which is continually working with local authorities.

While you enjoyed the full protection and security of your property insurance, your premium dollar was working for you and for the good of your community by ferreting out this dangerous criminal.

As an active member of the National Board of Fire Underwriters, *The American Insurance Group* emphasizes the strength of its slogan:

Quality Insurance through ever-expanding and ever-improving Quality Protection since 1846.



1846
THE AMERICAN INSURANCE GROUP

Newark, New Jersey

The American Insurance Co.
Bankers Indemnity Insurance Co.

The Columbia Fire Insurance Co.
The Jersey Fire Underwriters

What to do in a Tightening Money Market

Read this
TIMELY
New
Book



IN THE YEAR AHEAD, will operating cash be your Number One problem? Can high costs, high selling prices, and continued slowing down of collections limit your volume . . . possibly below the break-even point?

If so, you should read our timely new book, just off the press. It explains how you can get the funds needed for efficient and profitable operation.

You may discover that under our Commercial Financing Plan you can get *double or triple* the amount of money available under commercial time loans. You will read how money is available under a *continuing arrangement* that frees you from renewals,

calls and periodic cleanups of loans . . . enables you to plan ahead intelligently despite a tightening money market.

"HOW TO HAVE AN ADEQUATE AND CONTINUING SOURCE OF OPERATING CASH" shows you why manufacturers and wholesalers are finding this plan sound, advantageous and economical . . . why they used more than a quarter of a billion dollars under our Commercial Financing Plan last year.

Write or telephone the nearest Commercial Credit Corporation office listed below for your copy of this timely book. There is no obligation.

COMMERCIAL FINANCING DIVISIONS: Baltimore 2 • New York 17 • Chicago 6
Los Angeles 14 • San Francisco 6 • Portland 5, Ore... and other offices in more than
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device, made of aluminum, weighing 10½ pounds and measuring 20 by 20 inches in length and breadth and 5 inches in its greatest depth, provides for automatic alignment and full visibility.

When using the machine for payrolls, the clerk inserts the register sheet and turns it to the proper writing line after which the individual earning card is placed over an inked ribbon on pins which line it up with the register sheet. On top of this is inserted the employee's check and statement of earnings or the employer's cash receipt and employee's statement, backed with a carbon. The clerk then writes in the normal order followed in computing and entering a payroll, completing all work in a single writing. The flexibility of the system permits the designing of forms to fit any payroll requirements.

Store on Wheels—Borrowing a leaf from the country peddler of yesteryears, a large department store is experiencing heavy sales of slow-moving merchandise by taking it to the market via trailer.

Mandel Brothers, Chicago merchants, transformed a trailer shell into a mobile "tack room." Stocked with \$10,000 worth of boots, saddles, and other equestrian gear, the new department set out for the nearest horse show. Customer reception was so favorable that the store has travelled 6,000 miles since its debut last May, visiting more than a dozen horse shows, fairs, and other events within a 250-mile radius of Chicago.

Allen Rob, Mandel Brothers buyer, says that the mobile store already is dated up well into 1949 and that turnover is brisk enough to warrant year-around operation. Stock can be changed in less than two hours. As a "tenpins" trailer, the mobile store is sent to industrial bowling leagues, offering curb service.

Free Enterprise—In engaging cartoon style the story of the founding and growth of a leading hotel chain is combined with a consideration of the opportunities presented by the American system of free enterprise, in a 20-page, 7½ by 11 inch booklet.

The brochure, *An American Venture*, published by Hotels Statler Company, Inc., was distributed not only to

all Statler employees, but to 20,000 leading business executives as well as to clergy in Statler-served cities, Chambers of Commerce, universities, and to the press and radio.

The advantages of free enterprise are illustrated in part by the story of Ellsworth Statler, founder of the hotel system, whose notes on what guests wanted in a hotel, compiled while serving as bell-hop and desk clerk, proved to be most advantageous when he opened his first hotel.

Nylon Bearings—Requiring little or no lubrication, nylon is finding new application for bearings, gears, and various small machine parts.

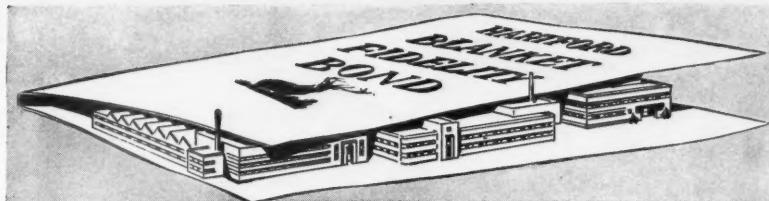
Nylon bearings require no lubrication for light loads at high speeds or for moderate loads at low speeds, according to the Plastics Department of E. I. duPont de Nemours & Company. Where lubricants are necessary, either oil or water may be used. Motor oils do not affect and are not affected by nylon.

One of the first nylon bearing applications to go into commercial production was in the consumer field—wheel bearings permitting baby carriages to roll smoothly and quietly without lubrication.

Thread—The first marked change in the process of thread-making since its invention by primitive man is the creation of "Monocord," whose filaments are welded together rather than twisted as in the conventional thread. This was developed by Belding Corticelli (Belding Hemingway Company,



Ordinary twisted nylon sewing thread, left, is contrasted with welded Nymo, right, in photomicrograph.



How can employers guard against large dishonesty losses?

Your judgment in picking people for positions of trust may be of the very best, but it has to be based mainly on past records of character and integrity. It can give you no guarantee against future developments which may induce the most trustworthy employee to succumb to the combination of temptation and opportunity and become an embezzler.

Fidelity Bonds offer business management the only positive means for dealing with this employee dishonesty risk. Such protection in its most modern and highly perfected form can be provided for your organization through Hartford *Blanket* Fidelity Bonds which offer:

1. Repayment of losses of money, merchandise or other company property stolen by employees, whether or not the identity of guilty employees is known.
2. Coverage on *all* personnel—executives, sales staff, office workers and construction crews, watchmen and maintenance men, etc.
3. Hartford *Blanket* Bond rates are at the lowest point in history.
4. Automatic protection against personnel changes, eliminating the danger of uninsured losses.
5. Reduced record-keeping and handling expense, since it is unnecessary to report personnel changes or make premium adjustments during the bond term.
6. Freedom from personnel troubles—because Hartford *Blanket* Bonds cover *all* employees alike, there is no cause for any feeling of discrimination.

These and many other benefits of Hartford *Blanket* Fidelity Bonds are worth your consideration. Your Hartford agent or your own insurance broker will gladly furnish full information on request.

HARTFORD

HARTFORD FIRE INSURANCE COMPANY

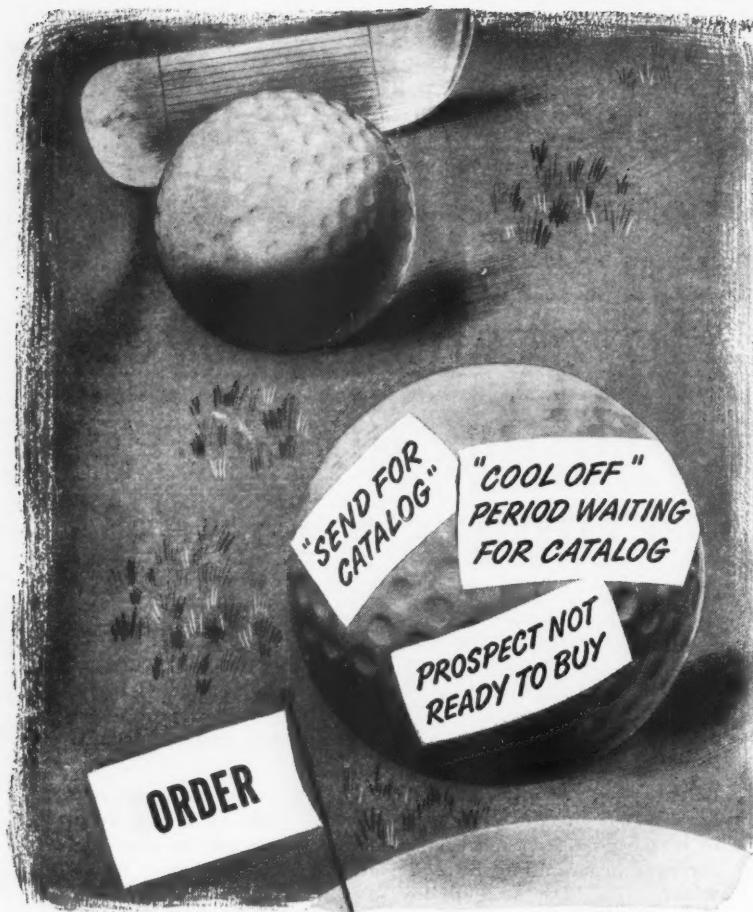
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are your Salesmen stymied by these Sales Hazards?

Filing your catalog in Sweet's gives your prospective buyer the information he wants, when he wants it . . . when he's ready to buy. As a result your salesmen and the prospective buyer get down to business faster, with less time wasted making unnecessary calls . . . your cost per sale is less.

Have the Sweet's representative show you how to narrow the gap between you and the buyer . . . make every salesman's call count more.

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*Puts your Catalog into the Buyer's Hands
when he's ready to Buy*

119 W. 40th ST., NEW YORK 18, N.Y.

Inc.) which manufactures industrial threads and silk, taffeta, satin, and rayon goods.

The new product, the first successful production of non-twisted thread, contains the same number of filaments as in twisted thread, but the filaments are parallel, welded together side by side. This eliminates the saw edges or ridges which cause dragging or snagging, wear on a sewing machine, and the little French knots which interrupt the high speed production of to-day.

For its first Monocord thread, Belding Corticelli picked nylon, but it could have selected almost any other fiber as the same principles would be applicable. In the production of the yarn, known as "Nymo," the same multifilament nylon is used as is employed for any other thread. Nymo, which has the strength of nylon as well as its elasticity, high resistance to abrasion, and chemical resistance, will cost the same as ordinary nylon thread.

Due to its smoothness, Nymo stitches readily into leather and canvas. Combining strength with small diameter, it likewise lends itself readily to bookbinding and use in the lingerie and foundation garment fields.

Nymo is made in a pilot plant at Putnam, Conn., where production facilities are being expanded as rapidly as possible for the opening of the first commercial Monocord plant.

Retirement—Typical steps which large companies are taking to prepare their workers for retirement are indicated in a survey conducted by the Institute of Industrial Medicine, New York University-Bellevue Medical Center. Executives were interviewed of fourteen of the leading businesses in the New York Metropolitan Area.

With a general consciousness on the part of management of the necessity for a program to prepare the worker for retirement, plans fall into three categories: (1) cultivation of gainful hobbies as a part of the in-plant educational program, (2) setting-up of committees with the responsibility of actually preparing "careers after 65," and (3) easing off of duties to prepare the individual for his retirement years. House organs and company bulletins are used to keep the employee conscious of the future.

"Certain people, sometimes, can certainly be sickening!"

I'm just worn out...Directors' Day in our office again...Didn't I tell you?

Comes every six months. The directors are mostly from Richmond. They meet all morning, and after lunch they visit the departments, sort of like a reception.

My favorite directors are Mr. Finnald and Mr. Otherry—the darlings little old men! They retired years ago, but are interested in just about everything...and they always remember names!

Right off they noticed the new postage meter. And who steps up and takes credit for it but Mr. Big-I-Am Smithers. They say his wife is kin to some big stockholder. He's the Assistant Office Manager, but manages to play contract at that Club every day!...And I practically nagged him for weeks to put in a postage meter. The man simply sickens me!

WELL, Mr. Finnald wants to see how the meter works. And our Assistant Office Manager fumbles around...and pretty soon it's as plain as day that he doesn't know any more about it than a month-old baby! Never saw a man so fussed!...Then I stepped up.

"I guess Mr. Smithers has been much too busy with more important things than this little old machine," I said, smiling at him just as sweetly as if I liked him!

First thing, I said, there wasn't a single little old icky paper stamp left in the office that you had to keep locked up in a little old tin box...and we're all through with that unsanitary lickin' and stickin' stamps and envelopes.

The postoffice, I explained, just sets the meter for as much postage as we want to buy at any time. And in the meter, the postage is absolutely safe, can't get lost, borrowed or stuck together.

NEXT I showed them the little levers you set to get any amount of stamp for any kind of letter mail. Then I fed a letter into the meter, turned the handle—and out it came with meter stamp, postmark, and a little ad for the company and the envelope flap sealed up, too.



Ready for the new
POSTAL RATES? Write
for free chart, complete with all
changes...today!

I pointed out the little windows that tell how much postage has been used up and what's still on hand...mentioned that metered mail didn't have to be cancelled in the postoffice...And since we got the meter, nobody'd stayed after hours to tend to the mail—not even when monthly statements run extra heavy.

Well, Mr. Finnald and Mr. Otherry were just as pleased, and put a few letters through the meter themselves. Then they congratulated me on my "very excellent exposition"—imagine! And shook hands!

As they left I heard the Assistant Office Manager tell them I was one of his brighter girls... Certain people, sometimes, can certainly be sickening!

THE convenience of the postage meter wins thousands of new users to metered mailing every year...If you'd like to know what a postage meter can do for your office, just call the nearest Pitney-Bowes office. Or write direct to Stamford for illustrated booklet and free postal rate chart, complete with all new rates.



PITNEY-BOWES Postage Meter

PITNEY-BOWES, Inc., 1571 Pacific St., Stamford, Conn....Originators of Metered Mail. Largest makers of mailing machines. Branches in 93 cities in the United States and Canada.

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*Have you seen it?
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The AUDOGRAPH records your dictation, telephone conversations, meetings and conferences on paper-thin, flexible and mailable discs that cost but a few pennies — yet record for over 62 minutes.

With the AUDOGRAPH, tens of thousands of busy executives and professional men are saving hours of valuable time — multiplying and increasing their executive accomplishment — getting more work done faster, easier, far more economically because of a combination of features unmatched by any other machine.

Compact and portable, the AUDOGRAPH is the smallest and lightest of

all dictating instruments — occupies less desk space than a letterhead, weighs only 16 pounds, operates anywhere — in any position, even upside down — perfect for work at home or while traveling.

When you consider that only the AUDOGRAPH offers you all these advantages — you'll understand the importance of knowing more about the AUDOGRAPH before deciding on any system.

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Foreign Sales & Service: Westrex Corp. (Western Electric Export Corporation)

Canadian Sales & Service: Northern Electric Company Ltd., Montreal, Quebec



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THE GRAY MANUFACTURING COMPANY • HARTFORD, CONNECTICUT

Invariably, the nearness of retirement is the occasion for a review of the individual's case by the retirement board, frequently necessitating a personal interview. Such studies are usually started when the individual concerned is around 60, with succeeding efforts each year until actual retirement hearings. Emphasis is put on maintaining flexible and receptive minds.

Gage Blocks—The length of precision gage blocks may be accurately checked by air under a new method devised by the Sheffield Corporation, Dayton, Ohio. The only pressure exerted on the work is that of a stream of air flowing against the upper and lower surfaces.

The blocks are checked against a master calibrated set of blocks which are used in setting up the comparator and in obtaining a zero reading. In checking a block it is placed on the anvil between the two air gaging jets. Any change of the float from zero shows the deviation from the master and the amount is read directly from a scale of which each minor graduation represents one millionth of an inch.

Speedy Fastening—A novel method for imbedding studs into steel or masonry in the fastening of pipe hangers as well as in various other industrial applications is provided by a powder-actuated driver.

Manufactured by the Mine Safety Appliances Company, Pittsburgh, the light, portable tool will fasten a pipe hanger to a concrete ceiling or wall, steel I-beam, or column in a few seconds. It also will fasten wood to concrete or steel.

Operated by the discharge of a blank cartridge, the driver, through the interchange of barrels, permits two diameters of studs to be used— $\frac{1}{4}$ and $\frac{3}{8}$ inches.

Accounts Receivable—Ease of handling accounts receivable, the saving of time in their posting, and the elimination of possible error in copying from invoices is provided by the Remington Rand Kollect-A-Matic Simplified Unit Invoice Accounting Plan which does away with the accounts receivable ledger.

Applicable to businesses of any size,

"Holland Calling"

The undermentioned Trade Representatives and Traders in Holland are interested in establishing business relations WITH YOU. Direct all correspondence to these concerns at addresses given. This is a paid advertisement.

ANKER EMAILLEFABRIEKEN N. V., SOEST-HOLLAND. ENAMEL WORKS

MANUFACTURERS OF ALL KINDS OF KITCHEN GOODS AND HOLLOWWARE. A1 QUALITY. "WHITE CAT" BRAND. BERCKELMANS & NIJSSEN, JAN LUYKENSTRAAT 64, AMSTERDAM. CABLE: QUOTATION. IMPORTERS, EXPORTERS, GENERAL AGENTS SPECIALIZED FOR COMPENSATION TRANSACTIONS.

C. VAN DER BURG & ZONEN, Vlaardingen. Exporters of selected Dutch herrings all over the world. Agents wanted. Manufacturers of wooden barrels of any capacity and also of staves, headings and hoops. "CHEMPHAR" CHEMISCHE PHARMACEUTISCHE HANDEL MY, N. V., 228 Keizersgracht, P. O. Box 657, Amsterdam-C. Importers and Manufacturers. Representatives of chemical and pharmaceutical products.

DONOR TRADING COMPANY, P. O. Box 3001, Rotterdam-N. Wholesalers—importers—exporters of camping, sporting, shooting articles, cutlery, leatherware.

J. C. VAN DORP & ZONEN, Vlaardingen, Holland. Cables: Vandorp Vetteoordeskade, Vlaardingen. Exporters of Holland-Herring since 1891. Agents wanted.

JAC. DEN DULK & ZONEN (Est. 1871), Scheveningen. Cable address: "Visch" Salt and smoked herrings. Finest quality.

ADRIANUS VAN DEN EELAART, Schiedam (Holland). Korte Haven 25-29. Distillers and liqueur manufacturers since 1697. Where not represented importers and agents demanded.

Shoe machinery, electric motors, tools and all articles for shoe- and leather-ind. Offers to T.A.B., P.O.B. 264, 's Hertogenbosch, (Holland).

G. HOOGERWERE, Vlaardingen (Holland). Cable address: Egooh.

Salt herrings. Export to all countries since 1869.

E. HUNEAUS, Baarn (Holland). Representative for Holland of Fran-

color, Paris, and Etablissements Kuhlmann, Faris.

INDUMEX TRADE CO., Spuistraat 210, Amsterdam. General importers—exporters, railway materials, iron, steel, industrial products, motors, machinery, medical furniture, etc. Representations wanted for tool machinery, electric and diesel motors.

KAHA, N. V. BUTTON WORKS, HEERENGRACHT 20, AMSTERDAM.

BUTTONS AND BUCKLES.

C. KORNAAT'S HANDELMATSCHAPPIJ. Established 1775, Vlaardingen, (Holland). Export of salted and smoked herrings.

KWANTEN. Postbox 205, 's-Hertogenbosch (Holland). Chemicals, Shoe-dressings, Athlete's Footpowder.

MERREM & LA PORTE, N. V., Amsterdam. Technical office since 1870. General importers and exporters. Iron and steel, non-ferrous metals, technical goods.

N. V. MONTAAN METAALHANDEL, Amsterdam, Paulus Potterstraat 7. Cable address: Monja. Telephone: 24692, 23291, 23940. Wholesale dealers, importers and exporters of non-ferrous metals, minerals, chemicals and ferro alloys.

V. S. OHMSTEDDE, PAULUS POTTERSTRAAT 4, AMSTERDAM, HOLLAND. Imported and distributor of tool machinery exhibiting, April and September, Industrial Fair in Holland seeks agencies for lathes, millers, grinders, surface grinders, sheet working machinery, polishing, and grinding machines. Annual (1948) turnover \$600,000.

H. ONKERHOUT, Keizersgracht 254, Amsterdam (Holland). Cable address: HAKON, Amsterdam. Importers and exporters non-ferrous metals, steels, tools, hardware, etc.

OXYDE, N. V., LEIDSCHEPPEL, HIRSCH BUILDING, AMSTERDAM. IMPORTERS AND EXPORTERS OF OUE, IRON AND STEEL, NON-FERROUS METALS, CHEMICALS, RESIDUES SCRAP, ETC.

"PENTO" COSMETIC, Gieterstraat 5-7, Amsterdam-C. Cable address: Pento, Manufacturers of all kinds of cosmetic products, i.e.: Toothpaste, shaving cream, powders, creams, lipsticks, lotions, brilliantine, haircream, shampoos.

K. F. PETERS—CHEM. & PHARM. PRODUCTEN, Amsterdam. Cable address: Anorga. Are open for suitable products—as manufacturers' representatives—in the following lines: Chemicals (for technical use), plasticizers, solvents, etc.

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the plan essentially is a reproduction of one of the oldest used for accounts receivable, with the addition of various refinements and controls to adapt it to to-day's needs. This Accounting Plan follows the usual accounts receivable procedure of receiving invoices from the billing department, breaking them down into their respective control units, and of totalling the controls and reaching agreement with the billing department's total.

Posting consists of merely dropping the invoices into assigned pockets in their respective controls in the steel, fireproofed cabinets. If there is no other outstanding charge, the sliding plastic Graph-A-Matic signal attached to the card for each pocket is set over the current month. The signal need not be touched if another invoice copy is already in the pocket as the signal then will be showing the month of the oldest charge. Transcription errors are obviated as the ledger is composed of invoice copies rather than skeletonized transcripts.

When remittances are made it is merely necessary to remove the invoice copies and date-stamp them paid, putting the customers' checks in one pile and the invoices in another. When partial payments are made one copy of

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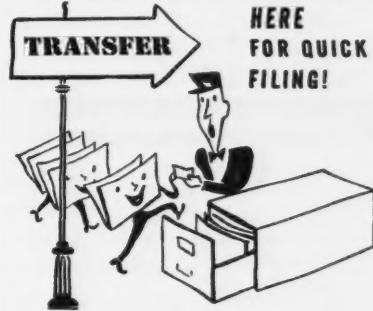
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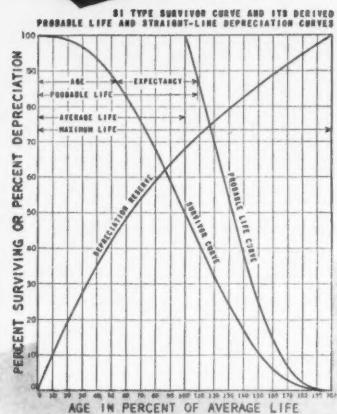
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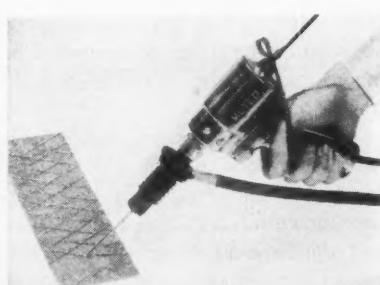
a partial payment slip is put in the control pocket together with the invoice copy and a duplicate placed with the pile of paid invoices. The Graph-A-Matic signal is moved up to cover the month of the next oldest invoice or moved back to neutral position if all charges are paid. Postings are proved by totalling amounts of paid invoice copies and partial payment slips against amounts of remittances received.

Quieter Communication—Clear and intelligible answers to paged messages from high noise level areas are possible with a new circuit for use in intercommunication or sound systems. Devised by Executone, Inc., New York, the circuit combines the operation of a trumpet type paging reproducer and a two-way staff station.

Previously, when replies were made through a two-way trumpet reproducer in a noisy location, the trumpet would pick up and transmit to the calling station all of the shop noises. Now, when the person called presses a lever on the most conveniently located staff station, the trumpet is cut off and two-way conversation at a normal noise level is carried on. The staff station, if necessary, can be placed in a sound-proof booth or in a quieter location. The new circuit can be wired directly to any Executone intercommunication or sound installation.

Safety Tread—To prevent falls on smooth iron or steel surfaces, a tread of permanent non-slip beads may be easily applied with a "Ruf-Tred" vibrating electrode holder, manufactured by the Metallizing Engineering Company, Inc., Long Island City.

Used with any A.C. or D.C. welding machine, the tool is drawn along the surface at approximately five feet a minute, depositing a rough, foamy bead which is about one-eighth of an inch



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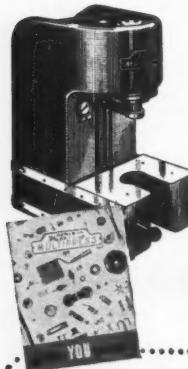
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wide by one-sixteenth of an inch high. Requiring no welding skill, the vibrator causes intermittent arcing which melts the end of the electrode and fuses the molten drops to the base. Without any special preparation the beads can be applied to dry, wet, or oily metal.

Typing—Completely automatic typing of planned mailings is provided by the new Addresso-Typist, product of the American Automatic Typewriter Company, Chicago.

The machine alternates between two perforated rolls, one containing the date, body of the letter, and the ending; the other, the names, addresses, and salutations. The letters are produced on a continuous form letterhead. Envelops must be fed manually into the machine, but need not be typed manually or checked.

On the automatic typewriters previously introduced by this company the letter is automatically typed, but it is necessary manually to type in the name, address, and salutation. There are three types of such machines, one carrying a single letter, and two push-button models, one with an over-all capacity of 200 typewritten lines permitting the selection of any combination from among 20 paragraphs or the selection of any one of 20 short letters, and the other with a capacity of 400 typewritten lines and a selectivity of at least 80 paragraphs.

Fire Warning—Management is quickly notified and guests warned and instructed when fire starts in a hotel, through equipment manufactured by the American Communications Corporation, New York City.

The fire detector, just recently developed, is installed in the loudspeaker of the American Centralized Radio, a plan for bringing music and announcements to the individual guest rooms, which is sold or supplied on a rental basis. The detector consists of a thermostat which is adjusted both for quick rise, such as when a fire starts in a waste basket, or a smouldering fire, which actuates the thermostat when the room temperature reaches 160 degrees.

Indication is given in the manager's office by a gong while an indicator drops showing the number of the individual room or a bank of five or ten

rooms in the affected area. The equipment may be arranged, depending upon the local fire ordinance and the wish of management, automatically to operate a siren, heard over the loud speakers in the guest rooms, and at the same time to notify the fire department.

Where the siren is not automatic, the manager or assistant, after checking on the fire, may break a glass panel in the warning system and start the siren. A switch then may be thrown so that the manager can give verbal instructions to the guests. The system also is connected to a box on the sidewalk so that firemen may do likewise.

Pallets—A means for tiering pallets containing materials irregular in size or shape or which are subject to damage or compression from weight, has been devised by the Paltier Corporation, Chicago.

This is provided by the Paltier "Steel Alignment Cone" assembly, fastened at the four corners of a wooden pallet by means of an adjustable lock nut. These cones fit easily into similar cones attached to supports at the corners of the pallet below. Tight enough to minimize sway, the nesting permits unhampered removal of the upper pallet.

Plastic Rivets—Offering a saving of time and money in the assembly of electrical appliances, furniture, automobiles (for dashboard installations and similar applications), plastic items, radios, and various other products are "Shakeproof Plasti-Rivets," product of Shakeproof, Inc., Division of Illinois Tool Works.

These are one-piece, self-expanding blind rivets, made of nylon plastic. The rivets, easily installed from one side of the work by hammer and hand tool or by guns or power riveters, expand to draw the fastened members tightly together. They are resistant to vibration and are non-conductive, dimensionally stable over a wide temperature range, and corrosion resistant. The two sizes embrace a grip length of 3/32 to 7/16 inches.

The rivets are available on special order in other thermoplastic and die casting materials, and in a wide range of colors. Another Shakeproof product is the "Plasti-Grommet," a combination rivet fastening and grommet, permitting passage of a wire.

COLOR

(Continued from page 20)

sured 1195; under the second condition it was 47, while under the third condition it was 20. Even more significant, brightness ratios under the first condition were over 100 to 1. The addition of new lighting reduced the ratio to 40 to 1—still excessive. Where proper color conditioning was done the ratio was lowered to an ideal 4.7 to 1.

As to worker efficiency, one task had an improvement of 37.4 per cent. However, a conservative figure of 5.5 per cent has been set as the general improvement shown in the department.

In cash value, this 5.5 per cent production improvement was equivalent to a saving on gross payroll of \$13,229 among some 95 government employees. If this figure is a credible one—and the writer fully believes that it is—one may state that right illumination and right color are worth about \$139.25 annually per average employee in American industry to-day! An organization having 100 employees would thus realize a year's saving of \$13,925. For 1,000 employees the annual saving would be \$139,250. These dollar figures, of course, would apply only where the before and after conditions were comparable to those of the government study. And because countless factories and offices are found that are as bad or worse, the dollar value of color is substantial and is hardly to be overlooked as a sound business investment.

It is not always easy to determine precisely the value of color. This is because emotional impressions may interfere with a more rational determination of fact. Yet in the realm of safety a sure check is in the record of accident frequencies. Lost-time accidents are a part of business accounting. They have definite costs in payments for compensation, medical care, lost production, and so on.

A color code for safety developed by the writer, issued by Du Pont in 1944, and accepted in substantial part as a national standard by the American Standards Association, was widely employed during the War. The United States Army Service Forces reported a reduction in accident frequencies in some government plants from a rate of 46.14 to 5.58. In one Quartermaster

Mr. Higby and the Legge Safety Engineer — No. 65



The floor of this institution's lounge, a "prestige" item, cost \$3328 a year to keep up . . . more than the cost of the floor itself! A Legge Safety Engineer shows them . . .

How to cut \$3016 a year from the price of prestige

Mr. Higby: Look at these figures! A whole night's work for 8 men every week. And the floors look rotten. How come?

Legge Safety Engineer: You're using a wax and it doesn't last. Your crew has to wash it off each time . . . then put on a new coat. They go through the same rigamarole every week. It takes a lot of time.

Mr. Higby: What can be done?

Legge Safety Engineer: Use a Legge Non-Slip floor polish. It stands up under heavy traffic. I'll show your crews how to make it last by cleaning and buffing . . . sometimes mopping on more polish. But they won't have to strip it off. That's the work that takes time.

(A MONTH LATER) Mr. Higby: This is better! Now 3 men do the floor in 2 hours. I'm saving \$58 a week. And the floors look swell.

Legge Safety Engineer: They'll stay that way if your men follow my instructions. I'll stop by often to make sure they do.



Get this man's help on your problems

He's the Legge Safety Engineer who has helped Mr. Higbys in your area get well-kept floors at lower cost . . . reduce slippery-floor accidents up to 95%. He engineers an upkeep program to your floors; instructs your maintenance crews in efficient Legge System methods. His advice is free; his supervision is part of your purchase of Legge Non-Slip floor-care products.

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Title _____

Type of floor _____

Area _____ sq. ft. D-A3

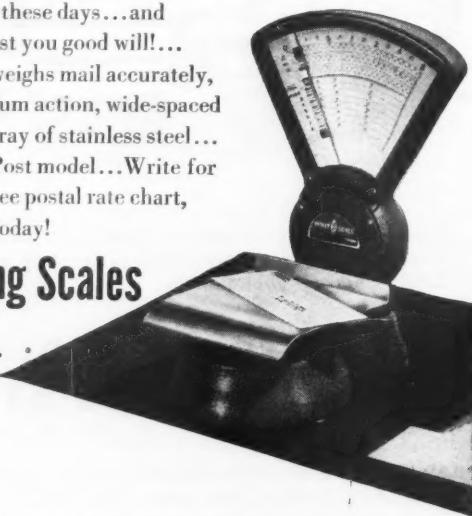
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depot, disabling injuries were cut from 13.25 to 6.99.

A carefully supervised and installed safety color code has reduced accident frequencies 42.3 per cent over a period of 18 months for the New York City Transit System. The color application was supplemented by a concentrated safety training program and had dramatic results among 38,000 employees. This is equivalent to a saving of \$500,000 in one year as figured by compensation insurance statistics.

Government records place an average cost of \$1,044 on every industrial accident. Obviously, adequate protection against loss of life or limb is not only imperative from the human standpoint, but is financially sound as well.

United States Navy

The safety color code previously mentioned is now used by industrial plants throughout America. It has become mandatory for all shore establishments of the United States Navy. The Navy, in fact, has recently undertaken one of the most comprehensive jobs of color conditioning ever attempted. A report which I prepared under private contract has set up color standards and specifications for ordnance plants, shipyards, supply depots, air stations, barracks, hospitals, machinery, equipment and transportation facilities; and all structures maintained as part of shore activity⁴.

This elaborate study will automatically eliminate hundreds of color standards maintained in the past by different bureaus and establishments. Co-ordination and simplification in the functional application of color will assure greater efficiency in industrial operations. The safety color code will help to reduce accidents and to improve still further the excellent record achieved by the Navy over many years.

One final and highly important result will be in the unification of color specifications. The best of scientific principles will be universally spread throughout the service to avoid costly mistakes or mediocre practises.

The success achieved in America has become known abroad. American industrial methods—and now American

⁴ The Application of Color to Shore Establishment, prepared by Faber-Birren & Company under Navy Contract NQy-14712, Bureau of Yards and Docks, United States Navy Department, Washington, 1948. (This report is restricted for Navy use only.)

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color conditioning—have brought new efficiency. They have in good measure accounted for our production leadership and have served as models in Europe. The right use of color has been given impetus through technical improvements in illumination and higher levels of light intensity as well as by tasks requiring fine tolerances, a greater abundance of critical seeing tasks, and a finer attitude toward industrial and human relations.

Through representation in Europe the writer has recently supervised the rehabilitation of two plants, one a textile mill in Verviers, Belgium, and the other a machinery manufactory in Neuchatel, Switzerland. No doubt in the reconstruction of industry abroad, color will play an increasingly useful rôle, and American methods and research will be the guiding influences. Technical and engineering journals have already presented the advantages of color and have quoted American results⁵.

No Longer a Novelty

To summarize, progress has been rapid in the growth and appreciation of color conditioning. Once looked upon as a novelty, it has well proved its case. Leading firms which to my knowledge have applied color expensively and profited from it include: American Cyanamid Company, Caterpillar Tractor Company, International Business Machines Corporation, International Harvester Company, Marshall Field & Company (Manufacturing Division), New York Telephone Company, and Owens-Illinois Glass Company. Paint manufacturers have also introduced programs and have employed specialists to assist them.

There is no longer any question about the value of color in industry. Thousands of plants will eventually benefit. The problem now, if one exists, is to state the advantages of color in more certain and factual terms and to undertake a far wider training program so that the best of scientific practise will be more widely understood and hence more easy to apply. For color as a science rather than as an art can accomplish many wonders for American industry.

⁵ *L'emploi Fonctionnel des Couleurs dans l'Industrie*, published in *Organisation Scientifique*, Brussels, June-July 1948.

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NET PROFITS

(Continued from page 13)

the entire three machines at one time three years ago would have smaller annual depreciation charges as the aggregate cost would be smaller, and another comparable business concern that purchased three machines at the current high prices would have larger annual depreciation charges.

So now we run against the reality that one of the important factors in the determination of net profit is depreciation and the depreciation is a relative figure depending upon the cost of fixed assets which are acquired in time at different periods at different dollar costs even though the items are identical. The fact that depreciation is handled in this way is an "accounting convention."

Capital equipment, that is, all forms of housing, machinery, and tools used in the production of wealth, in the true economic sense, is an aggregate of physical assets. As those assets are gradually used up, adequate replacement should be earned.

To the extent, then, that current depreciation falls short of covering the higher costs of capital assets, reported profits with depreciation calculated on original cost, are in a very important sense misleading, since they are higher than they would be if the full effect of higher replacement costs were taken into account.

As more expensive equipment is gradually acquired and made the basis of depreciation, total depreciation will increase correspondingly. Thus profits will fall, unless prices are then increased or operating cost cut in some way to cover the larger depreciation. In the meantime the layman will have a false sense of profitability at any given price level.

This situation could be solved as far as corporate accounting is concerned by taking yearly depreciation on the basis of cost or replacement whichever is greater. By taking depreciation on the basis of cost or replacement whichever is higher, the corporation would have adequate, reliable, and protective mathematical cost figures; by taking depreciation on the basis of replacement, which would mean depreciation lower than cost during deflation, eco-

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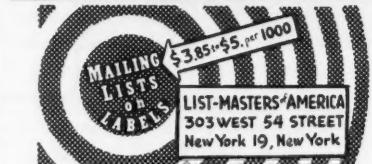
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nomic values at all times would be taken into consideration.

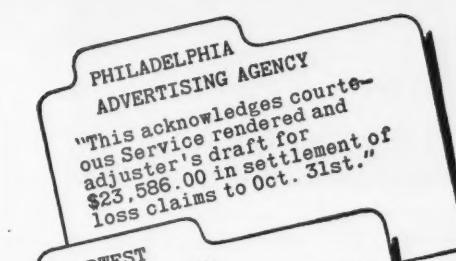
This problem is a serious one to business management to-day. It has currently been handled by certain representative corporations by setting up an additional lump sum reserve out of current earnings to offset what might be considered the high cost of new capital assets.

"Cost or Market"

For years it has been almost standard practise to carry inventories of industrial and commercial business concerns in balance sheets at cost or market, whichever is lower. Even this concept of "cost or market whichever is lower" is a relative and not a fixed principle. One mathematical figure is determined when individual items of the inventory are valued respectively at cost or market whichever is lower; another figure is obtained if families of items are valued in this way; and finally a third figure is secured if all items in the inventory are valued as a single aggregate in this way. Some person's judgment must decide which technique is to be used and, consequently, the value of the inventory which will be obtained in the computation.

Moreover, the inventory may be carried at cost or market whichever is lower, and still have widely different valuations depending upon which method of computation, first-in-first-out, base stock, retail method, standard cost, average cost, last-in first-out, is used. Again someone must decide which method of valuation will be adopted, and that particular method will affect the valuation of the inventory in the balance sheet, the cost of goods sold, and hence the digits representing net profit at the end of the profit and loss statement.

During a period of rising prices, increased dollar values accrue to inventories on hand. This area of inflation in accounting profits during a period of rising prices due to the fact that inventories are valued by some form of cost or market whichever is lower, might well provide the answer to the riddle, "When is a profit not a profit?" If the same physical volume of inventory continues to be carried, that part of net profit which is due to rising prices is reflected not in any increase in the fund



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of cash on hand, but solely in the dollar value of the inventory.

It may be seen quite clearly that the mathematical results obtained from the practise of accountancy are relative. The mathematical figure which up to this time we have conventionally termed "net profit," we should now, for the sake of clarity, term "accounting net profit" or "accounting profit" as the result is one which is obtained only on the basis of the assumptions of accountancy which have been discussed. That final figure achieved and certified by public accountants, generally is based on accounting principles and practises consistently maintained during the accounting period and has absolutely no relevancy to current economic values or constantly changing economic values.

The assumptions of accountancy and the judgments used in determining the method of inventory valuation, the cost of goods sold, the life expectancy of the various capital assets, and the formula of the depreciation used, all have influence on the final conventional "accounting profit" figure.

BUSINESS

(Continued from page 16)

tunity for cost reduction except by increase of volume, which would be difficult because there were not enough wigs sold in the entire country to keep four manufacturers busy. The Invisible Company might cut its prices and take business away from the other three, but one of the others had sufficient liquid resources to cut further and could last longer than Invisible. Lower prices would not increase the use of wigs.

A fair price agreement by all four companies might help, but higher prices would only accelerate the passing of customer demand. Also, an agreement without rigid control would be no gain except temporarily to the company which combined lip service to the common good with hidden price concessions. Then, there is the serious

question as to the legality of price fixing.

The engineer found that neither lower costs nor lower prices nor price control would help the Invisible Wig Company. It seemed to be only a question of choosing between a slow or a quick death. After thought and research, he decided that the company should add eyelashes, curls, and braids—the younger generation demands the feminine New Look. The factory was soon swamped with orders for glamour aids—the problem was solved.

A Button Company Lives

The Visible Button Company was heavily in debt and the bank wanted its money. A business engineer was engaged. He learned that the company had been founded many years ago by an immigrant button maker who made his buttons so good that Visible buttons were still the recognized standard of quality. The second generation was running the company, but instead of making buttons, three brothers kept office chairs safely anchored to the floor and spent their time arguing and blaming each other. Visible buttons were still made by hand and cost so much that they were bought only by customers who preferred quality to price.

The engineer prescribed automatic machinery and standardization of line. A cost system was installed which enabled the management to control expenses and to price products intelligently. The market was analyzed and sales programs laid out. One brother was made chairman of the board, one went on the road to sell, and one retired. A new president was put in charge. Visible buttons are still the best, priced to meet competition, and there are ten times as many sold as before. The three brothers now smile over dividends. The Visible Button Company lives.

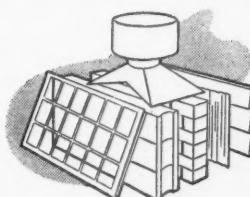
Years ago, when in railroad service, I was asked by my boss, the chief engineer, "What is the purpose of a railroad company?" Flattered by the question, after deep thought I propounded "To move goods and people rapidly, economically and safely from one place to another." "Wrong" said he. "The purpose of a railroad company is to make money for the stockholders." Let's not get involved in economics or sociology or whether production should

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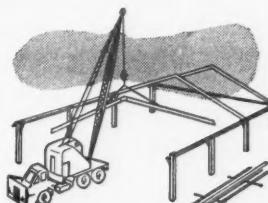


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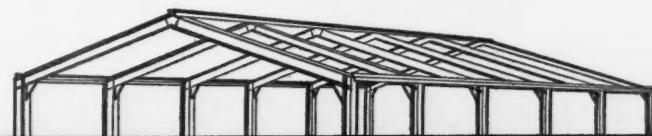
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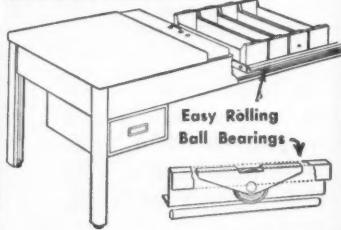
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be for profit or for use. The fact remains that a business which does not make profits, fails; and failures hurt more human beings than just those who are stockholders. Many people nowadays tend to become emotionally involved in the plight of the stockholder, the living of the employee, or the good of the consumer, according to their personal bias. They fail to see, as clearly as does the consulting engineer, that results for all depend on success of the enterprise.

Dog Trouble Led to Invention

A chap had a dog named Horace. He was a nice dog and good company. Now Horace liked to gad—particularly after dark. When the urge came, he would slip out of his collar and run away on pleasure bent. Dog trouble led to invention of a collar from which Horace could not emerge. Invention led to patent and then some friends and neighbors formed the Stay Dog Collar Company. For the money which they put up they were given shares of stock. These stockholders owned the business. The stockholders chose the directors and the directors elected the inventor as president. The president then ran the business. The board of directors determined general policies and declared dividends, but how many Stay Dog collars were sold, how many employees were hired and how much money became available for dividends, depended on the president. No matter how good Stay Dog collars were or how much in demand, what befell workmen and investors depended on the skill of his management.

Good management is essential for business success. Great managers are born, not made, and it is true that many a successful enterprise is the projected shadow of an executive genius. Unfortunately, every business cannot have a genius at its helm. There are too few geniuses. But it should have good management. The idea that managerial skill follows the family tree and the assumption that control of the capital stock carries with it executive ability, are quite prevalent and cause much trouble. I have never been able to see how inheritance or purchase of a masterpiece can make a man an artist. Were all managers equal to their jobs, the consultant might have less work

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to do, but it would be of a better and more pleasurable type. We never relish the job of underpinning a weak sister; we prefer to serve men who can stand on their own two feet.

The most difficult situation an engineer can face is where the executive who hires him is the root of the trouble. As the years of experience pile up, we in the management engineering profession reluctantly conclude that one of the great dangers to our economic order is incompetent executives. It is hard to blame subordinates for the sins of their bosses. It is also hard to criticize an employer; not at all easy for even a professional engineer to say "Thou art the man."

Individualized Systems

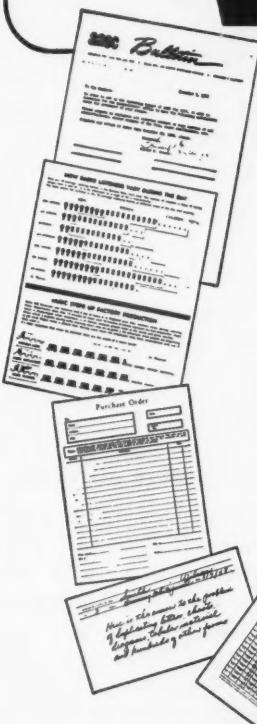
New or improved systems may be recommended by the management consultant and the creation and installation of office and factory systems are a normal part of professional service. Attempts to apply standardized systems to all situations are dangerous. The pressure on executives to buy canned systems is greater than commonly realized and has harmed the profession of consulting management engineering.

When the Pied Piper took on the job of rat removal he must have spent time in study of rats and their reactions to various instruments and melodies. From other experiences in the same line which he must have had, and from his study of music and rat reaction, he developed an instrument and a tune which did the trick. He was a professional engineer who solved the problem for which he had been engaged. It was too bad that he had difficulty in collecting his fee.

Now, suppose that the Piper had copyrighted the tune and patented the flute, and then engaged salesmen on a commission basis to visit other communities and sell the Pied Piper Service in the form of sheet music and flute, with services of assistants to train others to toot. That would be selling a system. The music and flute worked in Hamelin. The same music and flute might work in Leyden, and again they might not: it would depend on the rats. However, had the Piper been successful in selling quantities of his music scores and flutes, his revenue would have been much greater than he could ever hope

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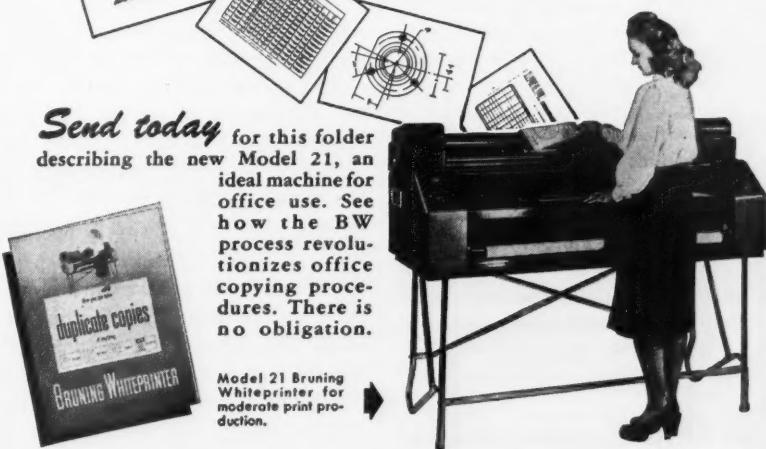
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to secure by personally conducting rodents. Similarly, some management engineers find that they can make more money by selling systems than by personal service.

Standard remedies are not without merit. My grandmother lived to a good age and was vigorous at the last. She was an ardent prohibitionist and wore a white ribbon. I imagine that she would have joined Carrie Nation's hatchet movement had she lived in Kansas. There never was a more determined foe of alcoholic indulgence, but her stomach was weak and she needed her bitters. My recollection is that her favorite medicine was "August Flower," of at least 50 per cent alcoholic content. When she had her bitters in proper quantity, she was benign. When the supply of bitters failed, the "morning after" feeling prevailed and grandmother was no pleasant companion. However, she definitely did get results. There are business executives who are enthusiastic over the results secured from systems which they have bought from high pressure salesmen. They have been lucky.

How to Improve Earnings

There are only two paths which can be taken when seeking to improve the earnings of a business enterprise. The outgo can be reduced by improved manufacturing methods and better product design, or the income can be increased by revision of line of products offered and more effective merchandising. Cost reduction by increasing office and factory efficiency has been the popular course with industrial engineering firms and often the unpopular one with employees.

Sometimes an operation is necessary and it is better for some to keep jobs than it is for none to have work. When there are too many pigs feeding at a small trough, none are satisfied. Pig elimination in this case produces better hams, but, when possible, it is preferable to enlarge the trough than kill pigs. More-and-more the competent business consultant turns toward the constructive side and endeavors to redesign products for lower manufacturing cost and to increase sales with new and better appearing items. Frequently, a change in distribution methods brings additional volume with



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resultant lower cost. It is no gain to the country, or to an industry, to reduce its working force; to increase the things which give comfort and pleasure is a definite gain.

The profession of management engineering offers great opportunities for a happy and useful life. The fundamental requirements are integrity of character, a logical and an agile mind, essential calmness of spirit, and an inordinate curiosity; plus, of course, a generous supply of common sense. Education should be as broad as possible, particularly in history, economics, and finance. Knowledge of bookkeeping and accounting is necessary. An engineering education is of tremendous value. More important than all else is an essential liking for people and knack for getting along with them. Tact is the usual word for it, but it is more than tact. It is an instinct to suggest rather than to preach; to request rather than to order. It is typified by something I learned when sales manager for a cosmetic house—never say "This will make the lady beautiful": say "this will keep the lady beautiful."

Gray hair is an asset; clients do not welcome youngsters. Age brings more, not less, demand. Practical experience is absolutely necessary. For these rea-



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sons, a toehold in the profession is difficult to attain.

It seems to me that the best course for a young man who is thinking of entering the profession, would be to enter the service of a large corporation in almost any capacity. Selling experience would be valuable, particularly because of opportunity for coming into contact with other people and businesses. After a promotion or two has been won, it would be wise to change to another corporation; perhaps do this several times in order to secure a variety of experience. After three or four changes, it would be best to sit tight and wait for an executive position. Clients like to have a consultant who has done things himself. The division of line and staff runs through the business world as it does through the Army. Line officers direct operations and staff officers make plans. The field of the management engineer is that of staff, even though at times he may temporarily take over line duties. Obviously, a staff officer who has had line experience is more valuable than one whose work has been in planning only.

Valuable Training

When maturity has come, the future management engineer should associate himself with an independent consulting firm—if only in a very minor position. A consulting firm needs assistants to analyze and prepare statistics, make studies of operations, gather merchandising data and work up budget details. Such work is valuable training for a professional career. The



"If Daddy thinks he's gonna get away with this working late nights with ME, he's mistaken."

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- In a few cases, buyers' comments were entirely unfavorable. Clients were warned in time, before marketing an unsaleable item.
- In other cases, buyers were unanimously enthusiastic about the new item. With this assurance, clients then backed their new products with extra sales promotion, in order to take full advantage of their opportunities.
- In many cases, buyers suggested minor changes that would improve product saleability materially—changes that clients could easily make because their items were still in the planning stage.

Depending on the product surveyed, interviews are conducted with representative wholesalers and retailers, buyers for chain outlets, industrial supply houses, manufacturer's agents, or other appropriate potential customers. The name of the client is kept confidential if requested. The cost of the service is ordinarily only a small fraction of the risk involved in marketing a new item.

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final step should be to become a partner in a consulting firm. A partnership is an ideal form of practise in that partners not only help each other in conference, but bolster courage when the going is rough.

An engineer should shun employment by organizations which are run solely to make money for the owners. There are many successful firms which employ men at small salaries and rent them out to clients at top fees. The business man who engages the firm pays for professional knowledge and judgment, and frequently gets an inexperienced cub. This is bad for the profession, but it is even worse for the cub in that he loses his vision of service and sees only opportunity to make money in an engineering racket. It is not uncommon for members of some outfits to rate their clients in terms of how much they "took away from them."

First, Do Good Work

The management engineering profession to-day is a mixture of good and bad—the competent engineer, the quack, and the racketeer. As more men enter the field with adequate experience and with the intent of doing good work more dominant than money making, the pill vendor will pass and the efficiency expert no longer be comic strip material.

Some days past, I ran across the phrase "No man is free whose livelihood is dependent on the will of another man." There are some of us who are individualists and for those of us who are that way, this profession provides a haven. We are dependent for our living on the support of our clients, but no one client can destroy our earning power. We escape that terrible disease of modern industry, the servile despair of the rabbit employee who worries day and night "If the boss should fire me, how or where can I ever get another job?" I have precious memories of years in railroad service in the West where it was the inalienable right of every man at any time he thought best, to tell off his boss, in the certainty that he could pick up as good a job with another road. That built men. It also built the West.

I had worked in his plant for months. Little I suggested had been adopted;

about every thing I proposed was argued against and postponed. When I came to the end of my engagement, he arranged a dinner in my honor which was attended by the officers and senior employees. At the dinner he gave me this toast. "You believe you have accomplished nothing, but you have. You fear that I regret your coming and welcome your departure. I do neither. You have made us think; results will follow. We, who must sail this ship, drink health and success to you who have helped us chart the course."

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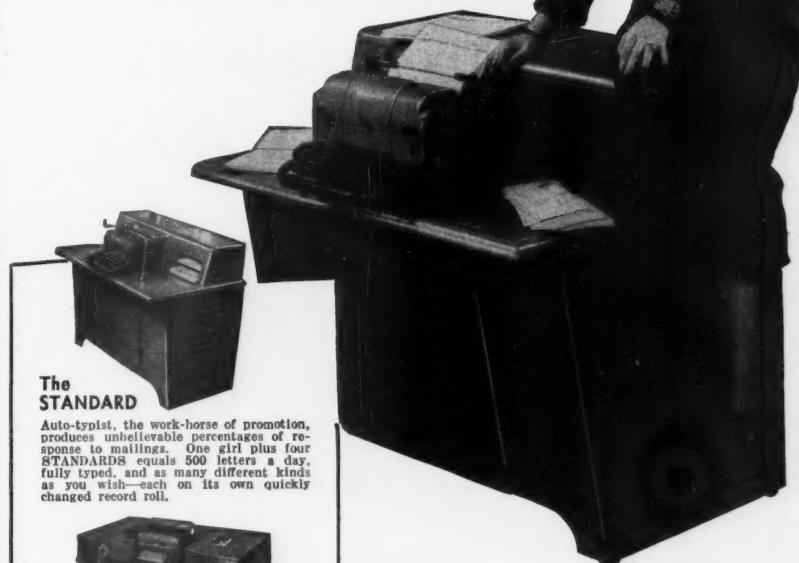
• • Published monthly by DUN & BRADSTREET, INC., A. D. Whiteside, President; Charles E. Terrell, Executive Vice-President; John L. Fleming, Senior Vice-President; Arthur Garrett, Vice-President and Treasurer; Carnot R. Allen, Roy A. Foulke, Meril A. May, J. Wilson Newman, Vice-Presidents; O. A. Sheffield, Secretary . . . 209 Broadway, New York 8, N. Y., Bkckman 3-7550. Address parcel post and express packages for DUN'S REVIEW to 326 Broadway, New York 8, N. Y.

• • The contents of this magazine are indexed in the Industrial Arts Index, in the Public Affairs Information Service, and also annually in an index available upon request to the publishers. . . . Member C.C.A. and N.B.P.A. . . . Volume 57, No. 2249. . . . Printed in U. S. A.

• • More detailed breakdowns of those data originally compiled by the publishers appear monthly in DUN'S STATISTICAL REVIEW, largely in tabular form, \$2 a year, \$2.50 outside of the United States. These data include business failures, bank clearings, building permits, price indexes, and regional trade information; they are summarized and interpreted each month in DUN'S REVIEW (see pages 24-26, and 28).

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